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ABSTRACT

This instructional guide contains 15 activities and exercises designed to help teachers familiarize their students with prairie and open habitat resources of Illinois. Each activity or exercise is ready to be copied and given to students. Activities include: (1) making a marsh hawk model; (2) building a prairie ecosystem; (3) investigating food chain links; (4) visiting a prairie (or an old field, pasture, grassy roadside, another open area if a prairie is not available); (4) working as a soil conservation specialist, wildlife manager, and conservation police officer; and (5) examining a fictional account taken from the journal of a young girl living and writing in modern day Illinois. The latter is recommended for all students because it provides a broad overview of Illinois' prairie heritage. Although the materials are probably best suited for students in grades 4-8, most of the activities can easily be adjusted to match the skill level of nearly every primary and secondary grade. A recommended list of appropriate exercises and portions of exercises/activities for grades K-12 and instructional strategies are included. (JN)

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524 South Second Street, Springfield, Illinois 62706

ILLINOIS NATURAL HERITAGE
CONSERVATION/EDUCATION KIT III

Special Theme:
Prairie & Open
Habitats
Ecology &
Management
STEP into the WILD
Illinois Department of Conservation
Exercise to earn
Step into the Wild

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SE044477

Illinois
Natural
Heritage

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Conservation/Education Kit III

ABOUT THIS EDUCATIONAL KIT:

Prairie and Open/Habitats Ecology and Management is the special theme of this Kit. The fifteen exercises and activities included in this instructional guide are designed to help teachers familiarize their students with the prairie and open habitat resources of Illinois. Although the materials are probably best suited for students in grades 4-8, most of the exercises can easily be adjusted to match the skill level of nearly every primary and secondary grade.

NATURAL HERITAGE MONTH:

As Natural Heritage Month in Illinois, April presents itself as a good time for teachers to use the contents of this Kit. Natural Heritage Month includes the observances of Earth Day (usually the third Tuesday), Arbor and Bird Day (the last Friday) and Bird Appreciation Week (the last week). Though the activities and exercises in this Kit can certainly be used in relation to these special days in April, the materials are always topical and can be used at any time of the year.

GIANT PRAIRIE COLORING PAGE:

A special feature of this Kit is the inclusion of a prairie coloring sheet which features 63 native Illinois plants and animals. The coloring page serves as an important visual reference for students as they complete exercises in the instructional guide.

BUILDING A PRAIRIE ECOSYSTEM:

Students are given the opportunity in this Kit to build their own prairie ecosystem by cutting out and putting together the 76 different features of a prairie ecosystem as presented on pages 13-34 of the instructional guide. Students begin by cutting out and placing elements of the prairie soil and continue by doing the same with prairie grasses, forbs, insects, amphibians and reptiles, birds and mammals. Students can arrange the features of the ecosystem as they please or they can follow the arrangement shown in the GIANT PRAIRIE COLORING PAGE.

"STEP INTO THE WILD"

A special "STEP INTO THE WILD" achievement coupon appears at the top of 15 exercises in the instructional guide. Students who complete those exercises are asked to cut out the coupons and paste them on the Prairie Challenge Page (3). Students who send in at least one coupon on their Prairie Challenge Pages to the Illinois Department of Conservation at the address shown below will receive a conservation button entitled "STEP INTO THE WILD" and featuring the Franklin's ground squirrel. To speed mailing, teachers are asked to gather Challenge Pages and send them in together as classroom sets.

LET US HEAR FROM YOU

Teachers and resource interpreters who use this Kit are asked to please complete the Teacher Questionnaire included in this Kit. Since this Kit is only the third in a five part series of conservation/education Kits, the comments and suggestions we receive from the teacher questionnaires will be very helpful as we prepare the remaining two Kits. Please help us make these educational materials useful and interesting by completing the questionnaire and mailing it to the address below. Please use the flip side of the teacher' questionnaire to order more conservation/education materials from the Department of Conservation. We would like to call your attention to the fact that we will send a classroom set of the GIANT PRAIRIE COLORING PAGE to any Illinois teacher or resource interpreter.

illinois
Department of
Conservation
life and land together

Communications Program
Division of Forest Resources and Natural Heritage
Lincoln Tower Plaza
524 South Second Street
Springfield, Illinois 62706

Illinois
Department of
Conservation
life and land together

This Illinois Natural Heritage Conservation Education Kit is jointly sponsored by the Illinois Department of Conservation and the Illinois State Board of Education and is approved by the Illinois Advisory Board of Conservation Education. Funding and technical support for this Kit was provided by the Divisions of Forest Resources and Natural Heritage, Fish and Wildlife, and Law Enforcement of the Illinois Department of Conservation. Materials in the Kit were prepared by Sally F. Stone, Communications Coordinator, Division of Forest Resources and Natural Heritage, Illinois Department of Conservation. Illustrations were provided by Robert F. Eschenfeldt, Squires Ad Agency and Art Studio. Technical editors for the project included the following Illinois Department of Conservation staff persons, Carl N. Becker, Natural Heritage Section Manager; Carol J. Mahan, Mammal Ecologist; William E. McClain, Natural Heritage Biologist; Vernon M. Kleen, Avian Ecologist; David Klinedinst, Wildlife Management Biologist; Melissa Murphy, Conservation Resource Manager; Glenda H. Burke, Safety Education Administrator; Sergeant Tom Wakolbinger, Conservation Police Officer and John Schwegman, Staff Botanist. Technical assistance was also provided by Jim Hartwig, Soil Conservation Specialist, Division of Natural Resources, Illinois Department of Agriculture. Coordination of school publicity and distribution was provided by Don Roderick, Educational Consultant, Illinois State Board of Education. Special appreciation is extended to Victoria Little for typing and proofreading the manuscript.

This kit is endorsed by the Illinois Department of Agriculture "as a sound conservation education Kit that will increase awareness of the value and need for protection of Illinois' rich prairie soil."

This Kit is endorsed by the Environmental Education Association of Illinois, "as a valuable asset to the classroom teacher to build awareness and understanding of one of Illinois' most valuable and cherished natural heritages — the prairie."

The Illinois Environmental Council, a coalition of organizations and individuals who are concerned about the environment in Illinois, "welcomes this third Illinois Natural Heritage Conservation Education Kit as a commendable step toward meeting the critical need for the youth of Illinois to be educated about the value of our natural areas and the importance of preserving our state's agricultural resources."

Environmental
Education Association
of Illinois
Rt. 1 • Chana, Illinois 61015

Illinois State
Board of Education
100 N. First St., Springfield, IL 62777
Phone: (217) 782-2826

ILLINOIS department of
AGRICULTURE
Illinois State Fairgrounds, Springfield, Illinois 62706

Illinois Environmental Council
407½ East Adams St., Springfield, IL 62701

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TEACHER QUESTIONNAIRE

A note to teachers and resource interpreters: This Natural Heritage Conservation/Education Kit is the third in a five part series of conservation education kits being produced by the Illinois Department of Conservation. You can help us continue to prepare quality materials for the remaining two kits by filling out the following questionnaire. *You can also use this questionnaire to request additional environmental education materials from the Department of Conservation.* Please mail your completed questionnaire to the address shown below.

Communications Program
Division of Forest Resources & Natural Heritage
Illinois Department of Conservation
Lincoln Tower Plaza
524 South Second Street
Springfield, Illinois 62706

Teacher's Name _______________ Grade Level _______

Name of School _______________

Address _______________

Did you use the Natural Heritage Conservation/Education Kit I and/or II? If yes, did you find the materials in Kit I to be useful? _______, in Kit II? _______.

****

Please rate the exercises in this kit in terms of how useful they are to you as a teacher. In the space to the right of each exercise, rate the usefulness of each exercise by placing a 1 if you consider the exercise to be VERY USEFUL, a 2 for MODERATELY USEFUL, a 3 if you used the exercise and found it to be POORLY USEFUL and a 4 if you did not use the exercise at all.

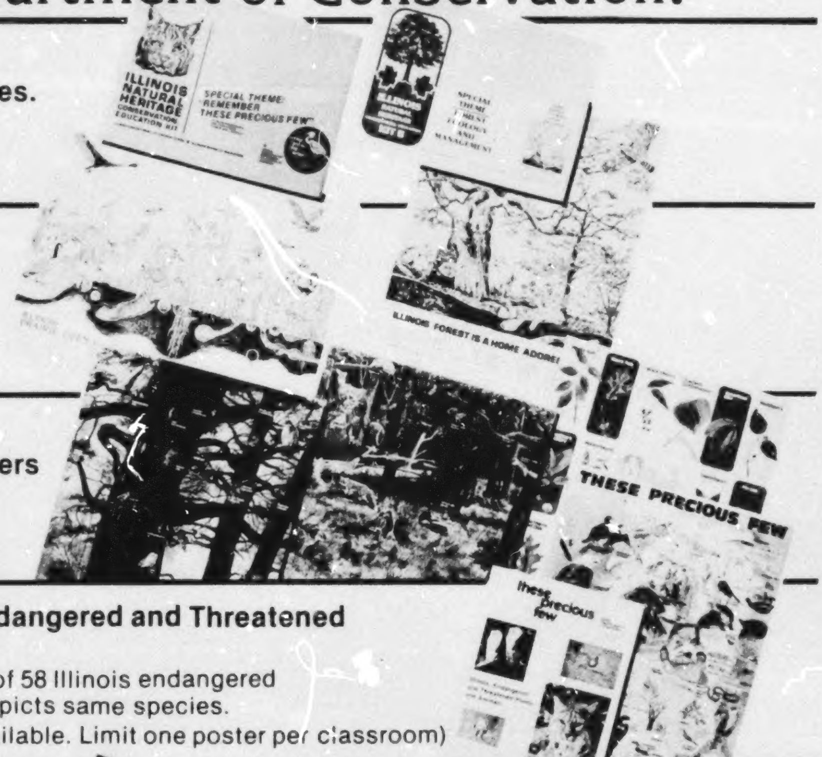
Journal of Julia _______
Building A Prairie Ecosystem (overall) _______
The Great Food Chase _______
Prairie Soil _______
Prairie Grasses _______
Prairie Forbs _______
Prairie Insects _______
Prairie Amphibians and Reptiles _______
Prairie Birds _______
Prairie Mammals _______
Prairie Sleuthwork _______
Working As A Soil Conservation Specialist _______
Working As A Wildlife Manager _______
Working As A Conservation Police Officer _______
Marsh Hawk Model _______
GIANT PRAIRIE COLORING SHEET _______

Please use this space to express any comments or suggestions you have about the kit as a whole or about any of its individual exercises. (If additional space is needed, please attach a separate sheet of paper)

TO ORDER MORE MATERIALS, USE THE BACK OF THIS FORM.

Submittal of the above information is VOLUNTARY. This form
has been approved by the State Forms Management Center.

Conservation Education Materials Available from the Illinois Department of Conservation.


ILLINOIS NATURAL HERITAGE CONSERVATION EDUCATION KIT
SPECIAL THEME: REMEMBER THESE PRECIOUS FEW
ILLINOIS FOREST IS A HOME ADORE!
THESE PRECIOUS FEW
these precious few

The Natural Heritage Conservation Education Kit Series. Kits I, II, and III.

(Limit one per classroom. No charge.)

GIANT FOREST AND PRAIRIE COLORING SHEETS

(classroom sets are available; please limit to 25 per set if possible. No charge)

The Woodland Birds, Mammals and Trees of Illinois — Color Posters

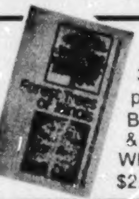
(one of each poster available per classroom. No charge)

These Precious Few — Illinois Endangered and Threatened Species — Poster and Booklet

Color booklet examines natural history of 58 Illinois endangered and threatened species. Color poster depicts same species. (Classroom sets of 25 of booklet are available. Limit one poster per classroom)

FIELD GUIDES TO ILLINOIS PLANTS

These easy to use field guides contain identification keys, illustrations, photographs and natural history information about a wide variety of Illinois plants.



331 pages. Black & White $2.00

Prairie Plants of Illinois

272 pages. Black & White $2.00

226 pages. Color $5.00

248 pages. Color $5.00

What Fish Is This?

This black and white booklet includes identification charts and natural history information about many of Illinois fishes. (Limit one per classroom. No charge.)

WHAT FISH IS THI

Illinois Mandatory Safety Education Digest

This brochure covers important safety laws relating to boating, snowmobiling and hunting and informs teachers about safety courses offered by the Department of Conservation. (Limit one per classroom. No charge.)

ORDER FORM

Please send me the following:

TITLE	QUANTITY
Natural Heritage Conservation/Education Kit I	
Natural Heritage Conservation/Education Kit II	
Natural Heritage Conservation/Education Kit III	
GIANT PRAIRIE COLORING SHEET	
GIANT FOREST COLORING SHEET	
Illinois Trees (color poster)	
Illinois Woodland Mammals (color poster)	
Illinois Woodland Birds (color poster)	
These Precious Few Booklet	
These Precious Few Poster	
What Fish is This?	
Illinois Mandatory Safety Education Digest	

Field Guides (Please enclose check or money order payable to Illinois Department of Conservation for correct amount)

Forest Trees of Illinois	
Prairie Plants of Illinois	
Wildflowers of Fields, Roadsides, and Open Habitats of Illinois	
Spring Woodland Wildflowers of Illinois	

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Prairie Areas in Illinois

Illinois
Department of
Conservation

Note to teachers and resource interpreters:

Listed below by county are prairie areas and restorations in Illinois. Many of the prairies are Illinois Nature Preserves. Please use care when visiting these Preserves and remember it is unlawful to litter or disturb the Preserves in any way. It is also illegal to collect any plant or animal residing in the Preserves.

Please ask permission of the landowner before visiting any of the prairie areas included in this list. To find out about more prairie areas, contact your county conservation, park or forest preserve district. Many of these agencies have prairie areas/restorations on their properties as well as trained interpreters to assist you and your students.

ADAMS COUNTY

Siloam Springs Prairie

Location: check with the site superintendent for the best areas. Most of the prairie is along the park roads at Siloam Springs State Park.

About 70 acres of successional dry mesic upland prairie occurs here. Owned by the Department of Conservation. Parking and trails.

BOONE COUNTY

Flora Prairie

Location: Southwest corner of county, east of Illinois Central railroad tracks on north side of Poole Road, ½ mile west of Wheeler Road.

A ten acre dry dolomite prairie owned by Boone County Conservation District, parking and trails.

BUREAU COUNTY

Wyanet Prairie-Hennepin Canal

¼ mile east of the county road bridge just south of Wyanet on the north side of the canal.

5 acres of dry and dry-mesic gravel prairie overlooking the Hennepin Canal. Parking and trail. Owned by the DOC.

McCune Sand Prairie

Located about 4½ miles north of Mineral on the east side of the road. Parking available for buses. Owned by the Bureau County Soil & Water Conservation District. Call Don Pretzsch (815) 879-5251.

CARROLL COUNTY

Ayers Sand Prairie Nature Preserve

Location: 3 miles southeast of Savanna and ½ mile east of Highway 84.

A dry sand prairie of 115 acres owned by the Department of Conservation; parking, no trails.

CARROLL & WHITESIDE COUNTIES

Thomson-Fulton Sand Prairie Nature Preserve

Location: Between Thomson and Fulton, west of Burlington-Northern railroad right-of-way.

Dry sand prairie owned by the Department of Conservation, U.S. Fish & Wildlife Service, and Corps of Engineers; scientific study area; parking, no trails.

CASS COUNTY

Location: Within the area east of Route 78, north of Virginia. Approximately four acres of loess hill prairie. Contact the Site Superintendent, Sanganois Conservation Area, P.O. Box 177, Browning, Illinois 62624 (309) 546-2628.

COOK COUNTY

Gensburg-Markham Prairie Nature Preserve

Location: In Markham, east of Kedzie Avenue, west of Interstate 294 and between 155th and 157th Streets.

Ninety-five acres of dry-mesic, mesic, and wet-mesic sand prairie; owned by Northeastern Illinois University; access by permission only — (312/583-4050)

James Woodworth Prairie

Location: Glenview, on east side of Milwaukee Avenue, ½ mile north of Golf Road.

Five acres of mesic prairie owned by University of Illinois at Chicago Circle; interpretation center building open and trail guides available daily 10-3 June through September.

Morton Grove Prairie Nature Preserve

East of Waukegan Road and north of Dempster Street in the northeast portion of Prairie View Park within the Village of Morton Grove.

1.3 acres of mesic and wet-mesic prairie owned by Morton Grove Park District. (312/965-1200).

Somme Prairie

Location: Northbrook, ½ mile west of Waukegan Road, north of Dundee Road in Somme Woods Forest Preserve.

Eighteen acres of wet-mesic prairie; owned by Cook County Forest Preserve District; no parking or trails.

Thorton-Lansing Road Zanders Woods Nature Preserve:

North of 183rd Street and Thorn Creek Road, south of Thorton-Lansing Road and west of Calumet Expressway.

440 acres including wet to dry sand prairie along with several forested communities. Owned by Cook County Forest Preserve District. (312/369-9420).

DUPAGE COUNTY

Belmont Prairie Nature Preserve

Location: Downers Grove, south of Ogden Avenue (Rt. 34), west of Belmont Road at end of Prairie Avenue, on Cross Street.

Ten acres of wet to mesic prairie owned by The Nature Conservancy (Ill. Chapter); parking area to be developed, trails exist.

GRUNDY COUNTY

Goose Lake Prairie Nature Preserve

Location: Southeast of Morris, north of Lorenzo Road, on Jugtown Road.

1,513 acres including dry-mesic, wet-mesic and wet prairie and prairie potholes; owned by the Department of Conservation; interpretive center and trails.

HENDERSON COUNTY

Big River State Forest — DOC owned

About 4 miles south of the Big River Headquarters. Take the first road south of Bald Bluff road and turn east, go about ¼ mile to parking area.

About 40 acres of dry sand prairie.

IROQUOIS COUNTY

Iroquois County Conservation Area

Location: Northeast of Beaverville in southern and eastern parts of conservation area.

1,240 acres of wet to dry prairie and marsh. Parking provided, no trails.

JERSEY COUNTY

Pere Marquette State Park

Location: Within Pere Marquette State Park, on the south and southwest facing bluffs. Approximately six acres of medium to high quality loess hill prairie. Contact the Site Superintendent, Pere Marquette State Park, Box 158, Grafton, Illinois 62037 (618) 786-3323.

JO DAVIESS COUNTY

Apple River Canyon — DOC owned

Just west of campground above the bluff; ask site superintendent for exact location and trail to the prairie.

About ¼ acre of dry-mesic tall grass prairie.

LAKE COUNTY

Berkeley Prairie

Location: Highland Park, south side of Berkeley Avenue, west of Ridge Road.

Eighteen acres of mesic prairie owned by Lake County Forest Preserve District.

Gavin Bog and Prairie Nature Preserve

In northwestern Lake County, southeast of Fox Lake, south of Illinois Route 59, north of Long Lake and Rollins Road.

105 acres including wet prairie, sedge meadow, marsh and bog communities. Owned by Lake County Forest Preserve District. No trails developed.

Illinois Beach Nature Preserve

Location: Southern part of Illinois Beach State Park, Zion.

829 acres of wet to dry sand prairie; interpretive center and trails.

Wadsworth Prairie Nature Preserve

Six miles west of Zion, 7.5 miles northwest of Waukegan. Lies between Chicago and Northwestern and St. Paul and Pacific Railroad tracks and east of the Des Plaines River. Near Village of Wadsworth access via US 41 and Wadsworth Road.

176 acres wet and mesic prairie owned by Lake County Forest Preserve District. A trail is being developed.

LEE COUNTY

Green River Conservation Area

Location: Twelve miles south of Dixon on Co. 12.

Wet to dry sand prairie scattered throughout 2,330 acre conservation area owned by the Department of Conservation.

LIVINGSTON COUNTY

Sunbury Prairie

Location: 8.5 miles west of Dwight along the abandoned Central Gulf Railroad.

Twenty acres of mesic prairie within the abandoned right-of-way of a railroad; owned by The Nature Conservancy.

MASON COUNTY

Henry Allan Gleason Nature Preserve

Location: Three miles north of Topeka within Sand Ridge State Forest. The preserve contains 110 acres of dry sand prairie and dunes. Contact the Site Superintendent, Sand Ridge State Forest, P.O. Box 111, Forest City, Illinois 61532 (309) 597-2212.

Revis Nature Preserve

Location: Five miles south of Easton on county road 660N. Fifty-three acres of high quality loess hill prairie. Contact the Site Superintendent, Lincoln's New Salem, R.R. 1, Box 244A, Petersburg, Illinois 62675 (217) 632-3846.

Sand Prairie-Scrub Oak Nature Preserve

Location: Three miles east of Bath. The preserve contains 1,460 acres of dry sand prairie and scrub oak forest owned by DOC; parking and trails. Contact the Site Superintendent, Sand Ridge State Forest, P.O. Box 111, Forest City, Illinois 61532 (309) 597-2212.

MCHENRY COUNTY

Cary Prairie Nature Preserve

Location: Just south of Cary Junior High School bounded by athletic fields and utility right-of-way in Cary, Illinois.

5 acres of gravel prairie with developed trail system. Owned by Cary Elementary School District. Access by permission of Junior High Principal.

Queen Ann Prairie — Eckert Cemetery

Location: Quarter mile north of Charles Road on Queen Ann Road.

1 acre managed by McHenry County Conservation District. (815/678-4431). Trail around border of prairie developed.

Indian Ridge Conservation Site

Location: Approximately 2 miles south of McHenry on State Park Road, west of Fox River.

Small tract of dry gravel prairie owned by McHenry County Conservation District. (815/678-4431)

Veterans Acres Prairie

Location: Northeast of the northern end of Main Street including the eastern third of Veterans Acres Park in Crystal Lake.

30 acres of prairie restoration project managed by Crystal Lake Park District. Excellent trail system. Parking lot at end of Main Street.

MONROE COUNTY

Fults Hill Prairie Nature Preserve

Location: One mile east of Fults, on Mississippi River bluffs, north side of Bluff Road.

532 acres including loess hill prairie owned by the Department of Conservation; parking and trails provided.

MOULTRIE COUNTY

Coneflower Hill Prairie

Location: Immediately south of the Illinois Natural History Survey Building in the Shelbyville Fish and Wildlife Area. The site includes approximately four acres of glacial drift hill prairie. Contact the Site Superintendent, Shelbyville Fish and Wildlife Area, R.R. 1, Box 42A, Bethany, Illinois 61914 (217) 665-3112.

OGLE COUNTY

Bicentennial Prairie Nature Preserve — private

Location: About 2 miles east of Byron. Check with Douglas Wade in Oregon for exact location and permission to visit.

Eleven acres of dry-mesic gravel prairie.

Pine Rock Nature Preserve — NIU owned

Location: Three and a half miles east of Oregon on the south side of Rt. 64. About 35 acres of wet-mesic prairie. Parking along the highway.

PEORIA COUNTY

Jubilee College State Park — IDOC

Location: Several tall grass prairie remnants and a restoration along the main park road across Jubilee Creek. Check with Site Superintendent for best areas. Parking; no trails.

Blackhawk State Park

Prairie restoration will be planted this spring.

STEPHENSON COUNTY

Freeport Prairie Nature Preserve

Location: South edge of Freeport, on Walnut Road.

Five acres of dry dolomite prairie, owned by Jane Addamsland Park Foundation of Freeport; parking and trails.

TAZEWELL COUNTY

Ft. Creve Coeur Nature Preserve

Location: South end of Ft. Creve Coeur Park in Creve Coeur.

Two acres of glacial till hill prairie; owned by the Village of Creve Coeur; a trail is provided.

WILL COUNTY

Braidwood Dunes and Savanna

Location: One mile southwest of Braidwood and ½ mile south of Route 113.

145 acres of sand prairie and savanna; owned by the Will County Forest Preserve District.

Grant Creek Prairie Nature Preserve

Location: In Des Plaines River Conservation Area, east of Interstate 55, ½ mile south of Blodgett Road.

Seventy-eight acres of mesic and wet prairie owned by the Department of Conservation, no trails.

WINNEBAGO COUNTY

Bell Bowl Prairie

Location: Southwest edge of Greater Rockford Airport, North of Belt Line Road.

Fifteen acres of dry gravel prairie, owned by Greater Rockford Airport Authority; managed by Natural Land Institute; access by permission only (815/964-6666).

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Prairie Restorations

COOK COUNTY

Crabtree Nature Center

Location: Barrington Hills, entrance on Palatine Road, 1 mile west of Barrington Road.

Prairie restoration included in 1,100 acres of preserved land; owned by Cook County Forest Preserve District; exhibit building and several miles of educational trails.

Edens Expressway

Location: Along Edens Expressway at Niles Center Road.

Plantings on road right-of-way by Department of Transportation.

North Branch Prairie Project

Location: Along bicycle path in Cock County Forest Preserve on north branch of Chicago River in Chicago and Morton Grove.

Volunteer restoration project of wet-mesic prairie.

DEWITT COUNTY

Weldon Springs State Park

Location: In Weldon Springs State Park; four acres of mesic prairie. Contact the Site Superintendent, Weldon Springs State Park, R.R. 2, Clinton, Illinois 61727 (217) 935-2644.

DUPAGE COUNTY

Morton Arboretum Prairie Restoration Project

Location: Lisle, ½ mile north of Highway 5 on Highway 53.

Restored prairie areas on grounds of Morton Arboretum; admission fee; self-guided trail.

EFFINGHAM COUNTY

Interstate 57

Location: Highway median of Interstate 57 just south of Little Wabash River bridge.

JEFFERSON COUNTY

Interstate 57

Location: Within the interchange at the junction of Interstate 55 and Interstate 64 south of Mt. Vernon.

Plantings of prairie grasses by Department of Transportation.

KNOX COUNTY

Knox College Field Station

Location: On County 15, 4½ miles south of Victoria.

Several areas of restoration within the field station.

LAWRENCE COUNTY

U.S. Route 50

Location: Along north side of Route 50 at Bridgeport.

Little bluestem grass planted along roadside by Department of Transportation.

MACON COUNTY

Rock Springs Prairie

Location: In Rock Springs Environmental Center off Rock Springs Road in southwest Decatur.

A 10 acre restored prairie established and owned by Macon County Conservation District.

MADISON COUNTY

Gordon F. Moore Park

Location: In Moore Park off of the north side of Route 140, on the east side of Alton.

A 23 acre restoration project; owned by the Alton Park District; developed by the Nature Institute.

MCLEAN COUNTY

Funk's Grove

Location: On DOC property at Funk's Grove. Six acres of mesic prairie has been restored. Contact the Site Superintendent, Moraine View State Park, R.R. 2, LeRoy, Illinois 61752 (309) 724-8032.

PEORIA COUNTY

Caterpillar Tractor Prairie Restoration — private

Location: Call the Caterpillar Tractor Company office in Mossville for permission to visit. Restoration is on the office grounds and can be seen from Rt. 29.

SANGAMON COUNTY

Sangchris State Park

Location: Within Sangchris State Park along the entrance road to the east boat dock. Eight acres of mesic prairie has been restored. Contact the Site Superintendent, Sangchris State Park, R.R. 1, Rochester, Illinois 62563 (217) 498-9208.

SHELBY COUNTY

Wolf Creek State Park

Location: Within Wolf Creek State Park along the entrance road near the office; four acres of mesic prairie. Contact the Site Superintendent, Wolf Creek State Park, Rt. 1, Box 198-A, Findley, Illinois 62534 (217) 756-8260.

TAZEWELL COUNTY

Interstate 474

Location: Junction of Interstate 474 and Interstate 74, and for several miles west along Interstate 474.

Grass plantings throughout the interchange and along the right-of-way by the Department of Transportation.

WHITESIDE COUNTY

Rock Falls Jr. High School Nature Center

Location: Nature center with a ¼ acre prairie restoration located on the school grounds. Please contact the principal's office at the school to set up visits (815/626-2626).

The restoration features both tall and short grass prairie types. Trails.

WILL COUNTY

Interstate 57

Location: Behind Interstate 57 rest area south of Monee.

Grass plantings by the Department of Transportation on highway right-of-way.

A Prairie Challenge

Dear Student:

We invite you to a PRAIRIE CHALLENGE. There are 15 exercises in this Kit that bear a special PRAIRIE ACHIEVEMENT COUPON. We challenge you to complete as many of these exercises as you can. For every exercise you complete, cut out the ACHIEVEMENT COUPON and paste it onto one of the circles shown at the bottom of this page. Then mail this PRAIRIE CHALLENGE PAGE to the Department of Conservation. If you have at least one coupon on your PAGE, we will send you the special conservation button "STEP INTO THE WILD".

We hope this PRAIRIE CHALLENGE will be both fun and exciting, but you should keep in mind that it will not be easy. You will be challenged to build your own prairie ecosystem complete with over 60 plants and animals. And you will be assigned to spy on the prairie world as a prairie sleuth. As a Soil Conservation Specialist, you will have to design a program to save soil on an Illinois farm. Next you will wear the cap of a Wildlife Manager and you will be responsible for preparing a plan to provide habitat for wildlife on 250 acres of land. As a final challenge, you will have to be calm, cool and collected as you step into the patrol car of a Conservation Police Officer, and actually spend a day enforcing the conservation laws that protect our land and wildlife.

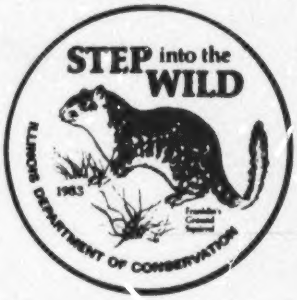
We firmly believe you can meet this PRAIRIE CHALLENGE but you will have to use your skill, reasoning, and even your imagination to succeed.

Good luck with your PRAIRIE CHALLENGE.

Sincerely,

David Kenney

David Kenney
Director
Illinois Department of Conservation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ILLINOIS DEPARTMENT OF CONSERVATION
1983
Franklin's Ground Squirrel

Journal of Julia

Marsh hawk Model

Building a Prairie Ecosystem

The Great Food Chase

Prairie Soil

Prairie Grasses

Prairie Forbs

Prairie Insects

Prairie Amphibians/Reptiles

Prairie Birds

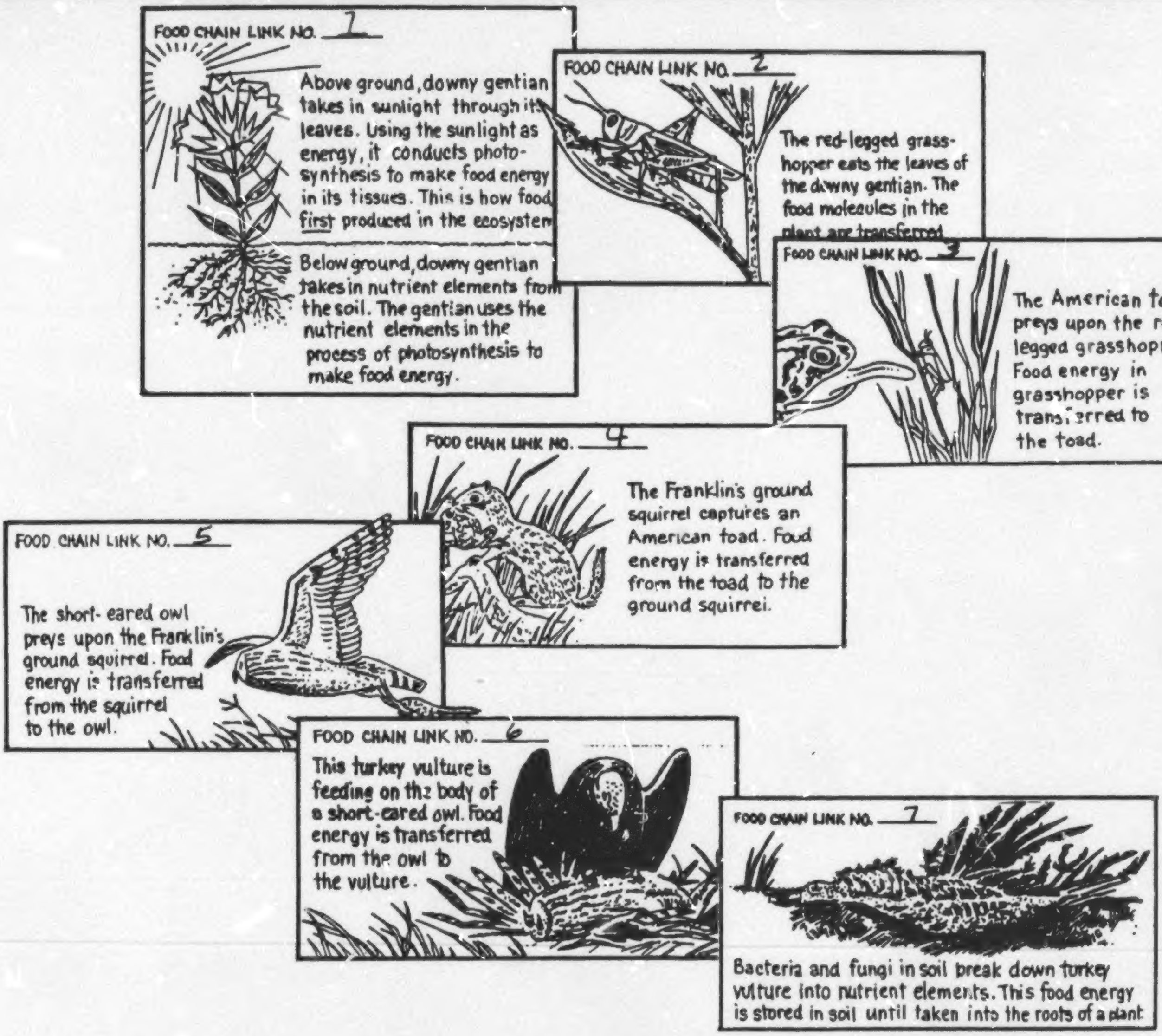
Prairie Mammals

Prairie Sleuthwork

Working As A Soil Conservation Specialist

Working As A Wildlife Manager

Working As A Conservation Police Officer



Above ground, downy gentian takes in sunlight through it leaves. Using the sunlight as energy, it conducts photosynthesis to make food energy in its tissues. This is how food first produced in the ecosyste

Below ground, downy gentian takes in nutrient elements fro the soil. The gentian uses the nutrient elements in the process of photosynthesis to make food energy.

The red-legged grasshopper eats the leaves of the downy gentian. The food molecules in the plant are transferred

The American toad preys upon the red-legged grasshopper. Food energy in grasshopper is transferred to the toad.

The Franklin's ground squirrel captures an American toad. Food energy is transferred from the toad to the ground squirrel.

The short-eared owl preys upon the Franklin's ground squirrel. Food energy is transferred from the squirrel to the owl.

This turkey vulture is feeding on the body of a short-eared owl. Food energy is transferred from the owl to the vulture.

Bacteria and fungi in soil break down turkey vulture into nutrient elements. This food energy is stored in soil until taken into the roots of a plant

Background Information for Teachers.

Each exercise in this instructional guide is ready to be copied and given to students. In addition, the instructions for each exercise speak directly to the student. The following includes support information teachers may find helpful when working with the exercises.

Grade level Appropriateness

Each exercise in this instructional guide is designed for multi-level use. For instance, students in lower elementary grades may be able to complete Work Step 1 of **PRAIRIE BIRDS** while students in higher grades may be able to complete Work Steps 1-4. The following is a *recommended* list of appropriate exercises and portions of exercises for grades K-12. It is only a suggested list. We realize teachers will best be able to access the suitability of exercises for their students.

KINDERGARTEN - 3RD GRADE — **PRAIRIE CHALLENGE PAGE. JOURNAL OF JULIA. BUILDING AN ECOSYSTEM. THE GREAT FOOD CHASE. PRAIRIE SOIL** (Work Step #1). **PRAIRIE GRASSES** (Work Step #1). **PRAIRIE FORBS** (Work Step #1). **PRAIRIE INSECTS** (Work Step #1). **PRAIRIE AMPHIBIANS AND REPTILES** (Work Step #1). **PRAIRIE BIRDS** (Work Step #1). **PRAIRIE MAMMALS** (Work Step #1). **PRAIRIE SLEUTHWORK** (Teachers may choose to use only portions of **SLEUTHWORK** and/or adapt strategies.) **WORKING AS A LAW ENFORCEMENT OFFICER** (Do you Have a Strong Conservation Ethic?)

GRADES 4-6. **GIANT PRAIRIE COLORING PAGE. PRAIRIE CHALLENGE PAGE. JOURNAL OF JULIA. MARSH HAWK MODEL. BUILDING A PRAIRIE ECOSYSTEM. THE GREAT FOOD CHASE. PRAIRIE SOIL. PRAIRIE GRASSES. PRAIRIE FORBS. PRAIRIE INSECTS. PRAIRIE AMPHIBIANS AND REPTILES. PRAIRIE BIRDS. PRAIRIE MAMMALS. PRAIRIE SLEUTHWORK. WORKING AS A SOIL CONSERVATION SPECIALIST** (Steps 1-2). **WORKING AS A WILDLIFE MANAGER** (Steps 1-2). **WORKING AS A LAW ENFORCEMENT OFFICER** (Steps 1-2, Do You Have A Strong Conservation Ethic?)

GRADES 7-9. All exercises.

GRADES 9-12. All exercises except **GIANT PRAIRIE COLORING PAGE.**

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Special Instructions for Exercises

GIANT PRAIRIE COLORING PAGE. Students can refer to pages 17-34 of the instructional guide for clues about the coloration of plants and animals included on the Page. One Coloring Page is enclosed in this Kit. Classroom sets of the Page can be ordered by completing the Teacher questionnaire included in this Kit.

PRAIRIE CHALLENGE PAGE: (Page 3) Teachers are asked to please send Challenge Pages as classroom sets to the Department of Conservation at the address shown on Page 1 of the instructional guide.

JOURNAL OF JULIA: (pages 6-10) This exercise is a fictional account taken from the journal of a young girl living and writing in modern day Illinois. This exercise is recommended for every student using the Kit because it provides a broad overview of Illinois' prairie heritage. The Journal also introduces students through the eyes, spirit and enthusiasm of someone their own age to the ecology of a prairie ecosystem. A good follow-up activity would be to have students prepare their own journals by writing about a prairie or other open habitat they are familiar with.

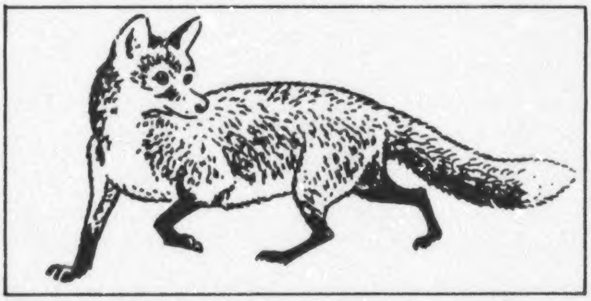
MARSH HAWK MODEL: (pages 11-12) This model is easy to put together and the result is a remarkably accurate model of the marsh hawk that students will enjoy. The entire pattern page (12) should be glued to construction paper before cut-out. All coloring should be done before cutting and gluing. Use white glue instead of paste. We recommend hanging the model by a string. Students can then raise and lower the model gently in the air and the wings will flap as if in actual flight.

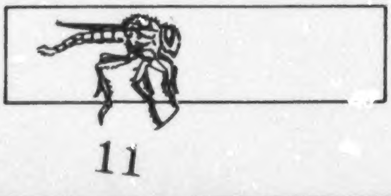
BUILDING A PRAIRIE ECOSYSTEM: (pages 13-34) Through the individual exercises in this section, students learn the interrelationship and function of the soil, grasses, forbs, insects, amphibians/reptiles, birds and mammals in the prairie ecosystem. A word picture introduces each of these exercises and is especially helpful for lower elementary level students. Upon completion of the exercises, students are given the option to cut out each of the plants and animals, as well as the elements of the soil, and place them together as a prairie ecosystem. Each of the plants, animals and elements of the soil are exactly the same as those shown in the Giant Prairie Coloring Page. This was done so that students can use the Coloring Page as a model for the ecosystem they build. Also, if teachers prefer to *not* have their students build their own ecosystems, the students can use the Coloring Page just as well.

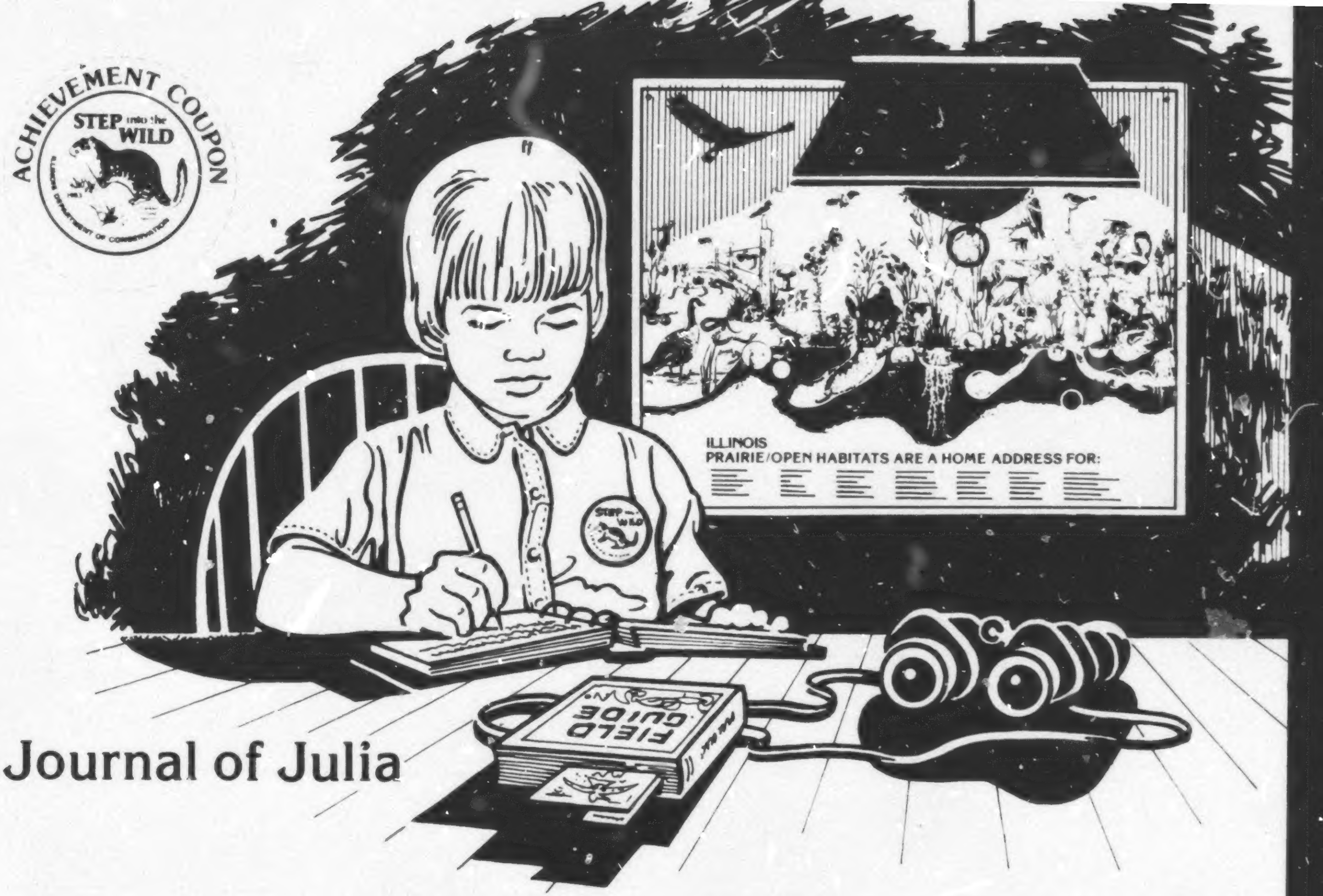
THE GREAT FOOD CHASE. Shown on page 4 are the food chain links in the proper order. The study of food energy in the prairie ecosystem can be expanded by having students draw an arrow from each animal in the prairie ecosystem (either the ecosystem they build or the one on the Coloring Page) to the plants and animals it eats. The result will be a food web. The diet of each animal is described in the individual exercises on pages 22-33.

PRAIRIE SLEUTHWORK: (pages 35-40) This is the primary outdoor activity of the Kit. For best results, the exercise should be conducted in a prairie. Teachers can consult the List of Prairie Areas included in this Kit to see if a prairie is located within reasonable distance of their schools. If a prairie is not accessible, an old field, pasture, grassy roadside, railroad right-of-way, or any other open area will be workable with the exercise. **Teachers are asked to please use extreme caution when conducting this exercise in a prairie. Also, please be sure to obtain the permission of the landowner before entering a prairie. The Forb Study and Leaf Study (page 37) as well as the Big Bluestem Drawing (page 38) depict the important structural parts of prairie plants and can serve as a reference for students working with Prairie Grasses and Forbs (pages 17-21).

WORKING AS A SOIL CONSERVATION SPECIALIST, WILDLIFE MANAGER, AND CONSERVATION POLICE OFFICER. (pages 41-56). The objective of these exercises is to familiarize students with the management of Illinois' prairie and open habitats. Each exercise gives the student a chance to actually work as a prairie/open habitat manager. This "hands on" strategy is used to stimulate the student's interest and serves as a vehicle to present critically important conservation issues as they relate to managers, landowners and the public. Students can best complete Step 3 of Soil Conservation and Wildlife Management if they use pages 45 and 50, respectively, as personal handbooks to best management practices and wildlife management practices.






ACHIEVEMENT COUPON
STEP into the WILD
ILLINOIS DEPARTMENT OF CONSERVATION
ILLINOIS
PRAIRIE/OPEN HABITATS ARE A HOME ADDRESS FOR:
FIELD GUIDE

Journal of Julia

April 18, 1982

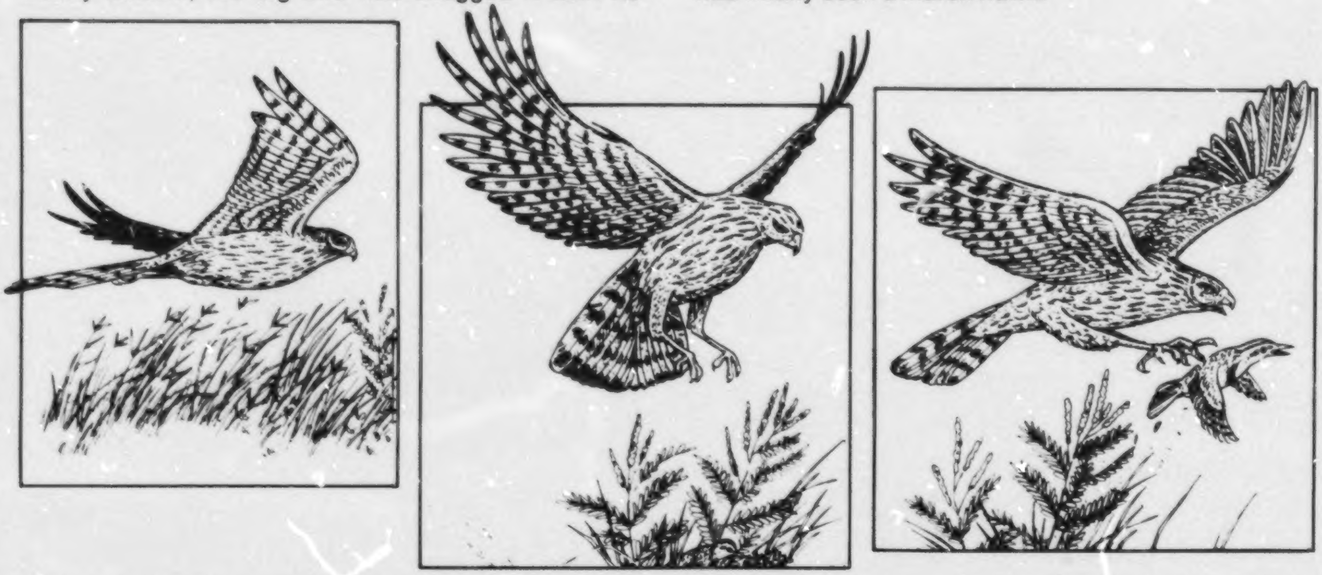
Dear Journal:

I've been waiting all winter for one to come to the prairie. During December, the snow covered the prairie like a giant white blanket. Just the tops of the tallest grasses like big bluestem and Indian grass poked up through the snow to brave the winter wind. One bright sunny day, the white prairie floor was glistening and I found the tracks of a red fox and a cottontail rabbit. On Christmas Day, I discovered a small opening in the snow. The opening was the beginning of a tiny tunnel that made a little bulge in the surface of the snow. I followed the bulge to the foot of a bur oak tree at the edge of the prairie. The teeth marks on the trunk of the tree told me that a prairie vole had traveled through the tunnel and had been nibbling on the bark of the oak. As I trudged home from the prairie that afternoon, I was happy to be heading toward a good dinner and a fire in the fireplace, but I was disappointed that another year had passed and I still had not gotten to see one.

Well, Journal, you know the snow melted from the prairie in February. Without its pretty white blanket, the prairie looked dark and bare, just like a tree that has lost its leaves. But still, I waited for the big bird to come. Instead, the month of March came and the prairie began to stir awake. By the 15th day of the month, the little pasque flower was in bloom and its bluish-purple flowers brought the first splash of color to the prairie. One month later, on April 15th, the first petals of shooting star busted loose to form beautiful pink blossoms. I knew then that many new species of wildflowers and grasses would come into bloom every week on the prairie until November. Soon the prairie would be a warm world of lavender, green, indigo, pink, gold, crimson, orange and yellow. Yet even with all the excitement, I was still waiting to see the big brown bird.

Finally, Journal, I saw one. It happened like this. I was out in the prairie early this morning. The sun was just beginning to break and the prairie grasses were covered with a silvery coating of frost. I had my usual equipment — a pair of binoculars, a field guide, a pencil and a notebook — plus one granola bar for breakfast. I was ready for anything and I was walking like an Indian through some needlegrass, when, all of a sudden, about 20 feet ahead, a big bird picked off the ground and took to the air. I could see that it had a brown back and a streaked brown belly, but I couldn't see if it had a white rump — the one clue I was really looking for. I was afraid I would scare the bird away so I crouched down in the needlegrass and waited and watched.

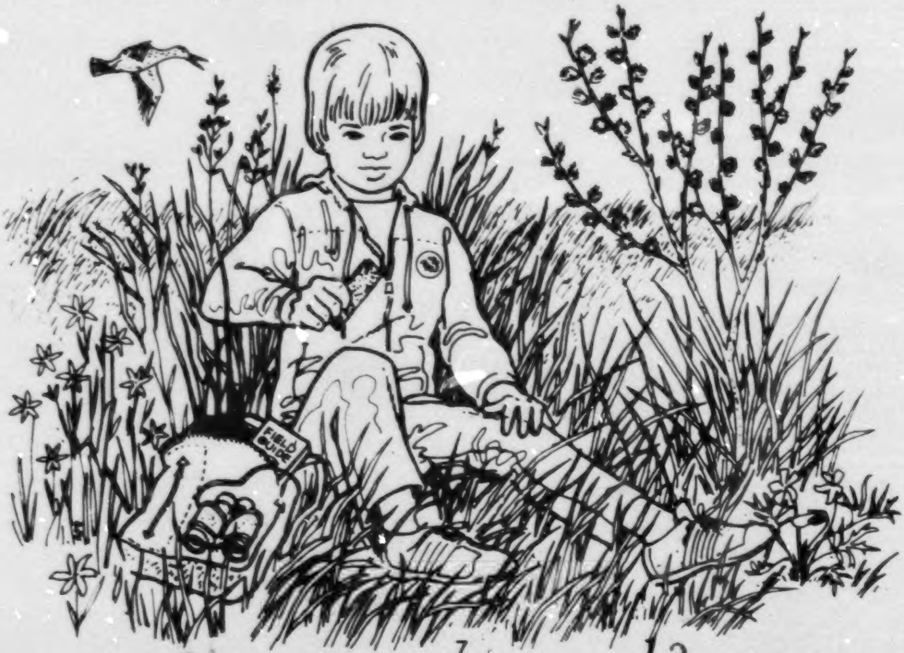
The bird flew slow and low over the prairie. My heart sank as it continued to fly away from me but then it dipped one of its slender wings a bit , and made a graceful turn back toward me. My heart began to race. I'm telling you, Journal, the flight of this bird was perfect. Every once in a while, it took a few soft strokes with its long slender wings but most of the time, it just cruised through the air. Prairie birds have vision eight times greater than people and I could tell this bird had its eyes glued to the ground looking for a bird or mouse for breakfast. Then all of a sudden, the bird stopped in mid air and hovered about 10 feet over a bush. I heard a rustle coming from the bush and I figured it was probably a deer mouse hiding out for its life. The patient bird kept hovering and my heart was beating 10 times for every beat of its wings. Then in a flash of a second, I saw a meadowlark shoot out of the bush like a bullet. But before the meadowlark was barely airborn, the big bird had snagged it with its razor-sharp talons. The captor then rose in the air and flew across the prairie with its prey. I jumped up and tried to catch sight of the bird with my binoculars. Aw, there it was, it had turned its wings down and was gliding to the ground. Before it disappeared into the grasses, I saw it — the big clue — the white rump. I had finally seen a marsh hawk.

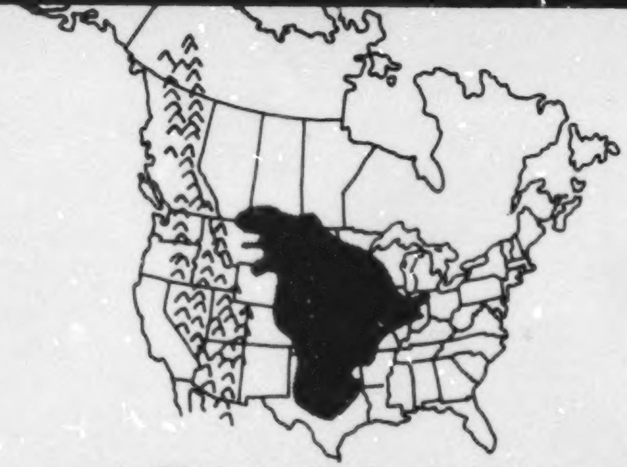


Completely out of breath, I sat down gently in the grass and took out my granola bar. It was a wonderful spring morning. Nestled there in the needlegrass, I felt like I was a part of the prairie and its beauty. Just two feet to the left of me, a prairie willow was in bloom, while to my right, I could reach and touch the tiny blue blossoms of narrow-leaved blue-eyed grass. With the tips of my toes I could just barely nudge the green stalk of a prairie violet. Overhead, an upland sandpiper was flying high in the sky. And the entire prairie was listening to the musical trill coming from the American toad, probably singing down by the prairie pond. As I took the last bite of my breakfast, I was happy knowing that the marsh hawk I had waited so long to see, was probably doing the exact same thing.

When I got to school this morning, I told my classmates about seeing the marsh hawk and I even showed them some drawings I had done of the hawk. Ms. Wade, our teacher, asked me to tell more about the prairie and gosh, you know Journal what a big mouth I have when it comes to the prairie, I just couldn't stop talking once I started my story.

I began by telling the class about Illinois, which is called the prairie state. 400 years ago, what we now know as Illinois lay on the eastern border of a giant grassland. This grassland covered over 400,000 square miles of North America. From east to west, it stretched from Indiana to the Rocky Mountains, and from north to south, it ran 2,000 miles from Canada all the way to the Gulf of Mexico.





In the Illinois country, the grassland covered 21 million acres of land. Most of the Illinois grasses were of the tall variety, like big bluestem and switchgrass. These tall grasses grew on the flat level land and in the river bottoms along the Illinois and Mississippi Rivers. During summer and fall, the big grasses grew to be up to 10 feet tall and a person could easily get lost trying to walk through them. Not all of the grasses were so big. Mid-sized grasses such as little bluestem and side-oats grama grew on the steep slopes of river bluffs and on flat sandy plains. Many beautiful wildflowers, such as purple prairie clover and prairie white-fringed orchid grew alongside the grasses, making the Illinois country a colorful place where the sky was big and the sun bright.

When European explorers came to the Illinois country in the 1600's, they were amazed at what they saw. They had seen oceans of water but they had never seen land that looked like an ocean of grass. Since they had no word to call this land, they used the French word "prairie" which means meadow to describe the great grassland ocean.

But the Europeans were not the first people to see the prairie. Native Americans were already living on the prairie, and had been for hundreds of years. Life on the prairie was not easy for these people. It was hot and dry on the prairie in summer and extremely cold in the winter. Severe storms of rain, snow, and sleet ravaged the land on a regular basis and the great prairie wind blew strong the year round. The land itself, though, was good to the native Americans. They plowed up small garden plots and raised crops of maize (corn), beans and squash in the fertile prairie soil. Twice a year, once after spring planting and again in winter, the native Americans migrated to the best hunting grounds where they took bison, deer and small game. Lacking horses and guns, they chased game on foot and used spears and arrows as weapons. Oftentimes, they set the prairie on fire to chase up big herds of bison.

The native Americans took only what they needed from the prairie. As a result, the prairie remained an untamed place where people as well as wildlife thrived. Great herds of bison, elk and antelope roamed the prairie freely. In spring, millions of prairie chickens "boomed" and danced on the ground while mighty birds of prey like the marsh hawk and short-eared owl patrolled its skies.

When the first white settlers came to the Illinois country in the early 1800's, they were very impressed with the beauty of the prairie. They had come from the eastern United States where the land is rolling and covered with forests. Many of the settlers had felt hemmed in by the hills and trees of the East, and as they walked out onto the flat, sunny prairie and faced the prairie wind, they felt a rush of freedom.

Then, Journal, I shared with the class a letter I had found in an old book about the prairie. The letter was written by a woman named Lucinda Rutherford, shortly after she settled in eastern Illinois. She wrote the letter to her mother in Pennsylvania to tell her about the Illinois country.

> "The prairies here are delightful, they are from 12 to 20 miles wide, and 150 long, instead of the timber surrounding them, they surround the timber, at this season they are most beautiful. The green grass has sprung up and covered the whole bosom of these wastes; with that grass there springs up a multitude of flowers of every hue, form, and scent. It is delightful to ride over this level land and every step, tramping those gems of nature underfoot. Their beautiful heads can be seen as far as the eye can reach waving in the summer wind."

Then, Journal, Jimmy Little raised his hand and told the class about a poem his great-grandmother had written about the prairie. The poem, he said, told about how the prairie would catch on fire and burn for miles. He asked me if that was true.

I answered yes, fire was very common on the prairie. Sometimes, the prairie fires were set by native Americans to chase up herds of bison. Other times, lightning struck the grasses, and like a match, set the prairie ablaze. Records show that 50 to 60 square miles of prairie would burn at one time. The flames of fire would swell up to 40 feet high and the entire sky as far as one could see would be bright red. The wind drove the flames like giant waves over the prairie. Remember how the European explorers thought the prairie looked like an ocean of grasses. Well, the prairie on fire looked like an ocean of fire.

Then, Journal, Susie Johnson raised her hand and asked a good question. She asked, "if fire was so common, why didn't it destroy the prairie?" I told her it is just the opposite of what she might think and she was surprised when I said that *fire is the best friend of the prairie.*

You see, Journal, it works like this. Fire burns off any young trees trying to grow on the prairie. If those

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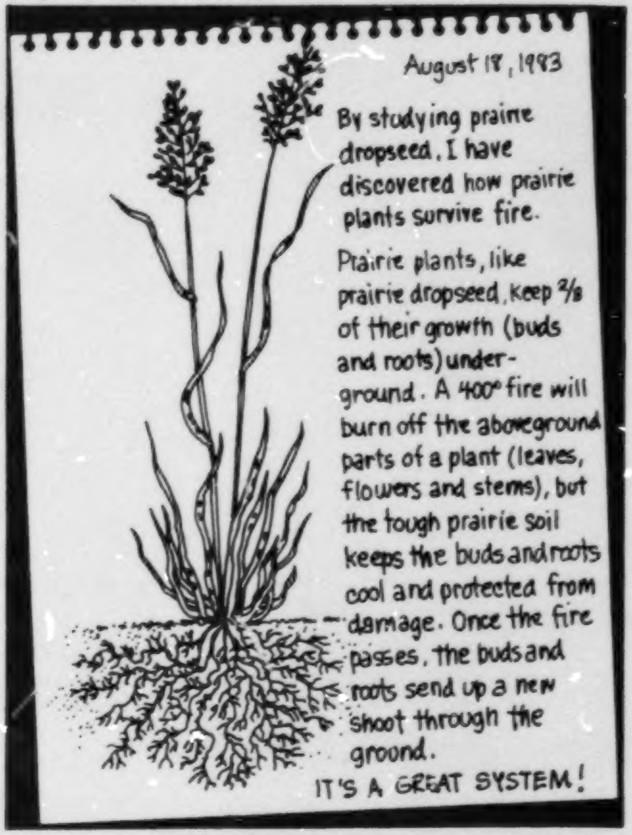
trees were allowed to grow, they would soon overshadow the prairie grasses and the prairie would become a forest. Fire helps the prairie in other ways too. It burns off the dead layers of grasses, thereby clearing the prairie floor so that the delicate stems of new plants will have room to push up through the soil. In the ashes left by the fire on the prairie floor there are important nutrient elements. Those nutrient elements enter the soil and are stored there until they are used to help new plants grow. So you see, fire befriends the prairie by helping prairie plants to grow and by preventing the growth of trees.

The really fascinating thing about the prairie and fire is that the prairie plants, unlike trees, can survive fire. I discovered how prairie plants survive fire by studying prairie dropseed and I showed the class this page from you, Journal.



August 18, 1983

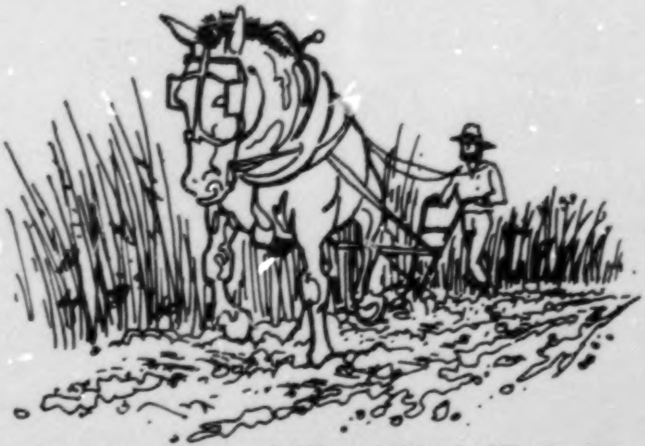
By studying prairie dropseed, I have discovered how prairie plants survive fire.

Prairie plants, like prairie dropseed, keep 2/3 of their growth (buds and roots) underground. A 400° fire will burn off the aboveground parts of a plant (leaves, flowers and stems), but the tough prairie soil keeps the buds and roots cool and protected from damage. Once the fire passes, the buds and roots send up a new shoot through the ground.

IT'S A GREAT SYSTEM!

Sharon Owens raised her hand and asked, "if prairie plants are so good at surviving, why isn't there more prairie in Illinois. I've never seen a prairie." Then, Journal, I had to tell the class a sad story, I had to tell the class how the Illinois prairie met something much more ferocious than fire — the plow.

White settlers, like Lucinda Rutherford, brought the plow to the Illinois country in the early 1800's. These settlers, who were our ancestors, thought the prairie was magnificent but they needed croplands, not prairie, to feed their families. And the settlers were afraid of the wild prairie fires. Oftentimes, prairie fires engulfed people, houses and barns, and livestock. The settlers had worked hard to come to Illinois and they were determined to tame the land and make it work for them. So, just like a person "breaks" a wild horse, the settlers "broke" the prairie by plowing up the prairie grasses and wildflowers and planting the seeds of corn and wheat in the prairie soil. And, if they didn't plow up a piece of prairie, they grazed cows on it and the delicate prairie plants soon became what was called "eat out". In this way, the hungry cows broke the prairie as surely as the sharp blades of the steel plow.



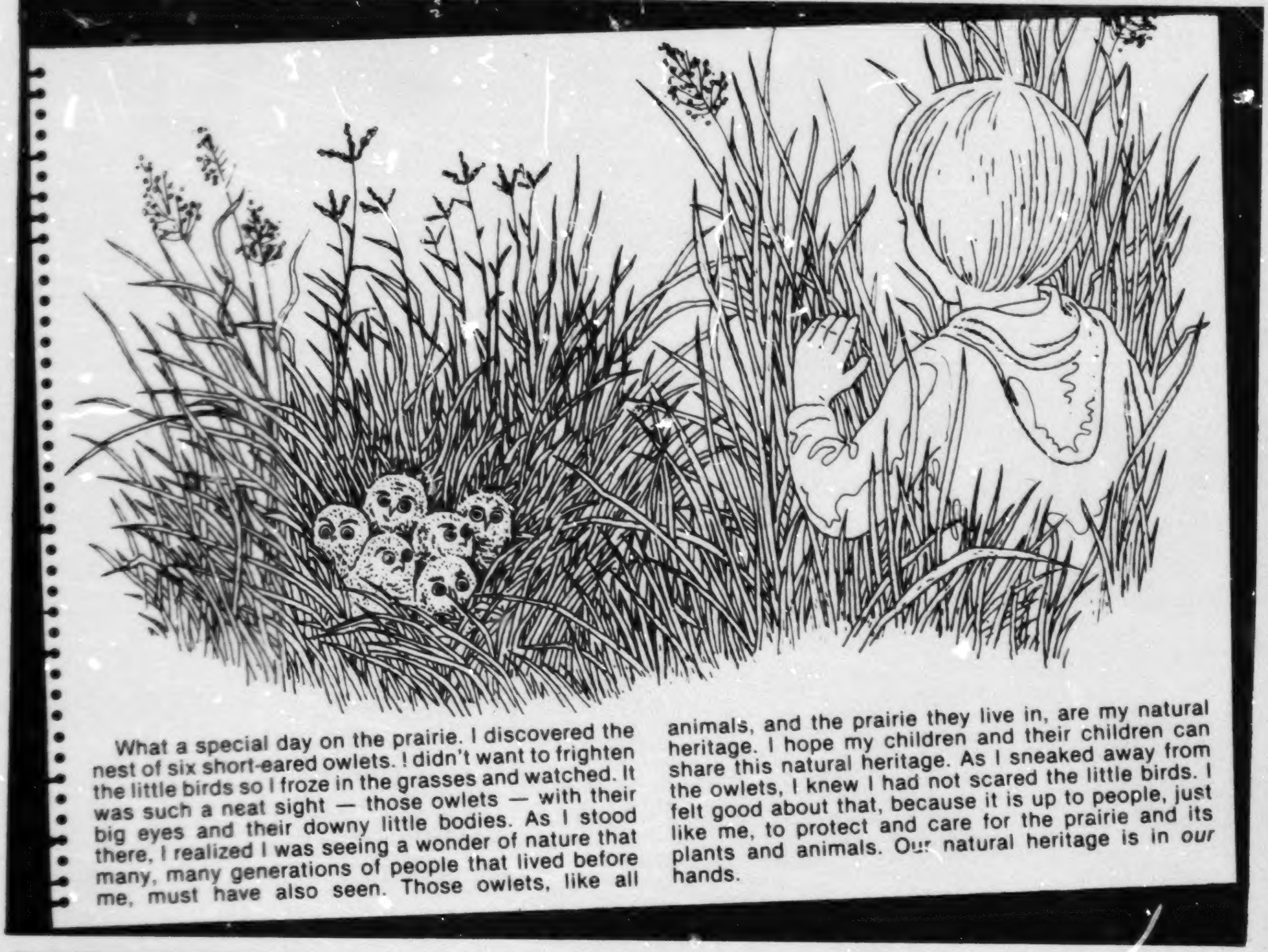
As more and more settlers arrived in Illinois, the prairie and its native people, were doomed. By 1835, the mighty bison, who must have wild land to survive, had fled its Illinois home for the still untamed lands of the West. About the same time, the last native Americans were being kicked out of their ancestral home in Illinois and herded to a reservation in Kansas. By 1860, nearly all of Illinois' 21 million acres of prairie had been cleared and was being used as farmland, towns, and roads. With the absence of fire, trees were growing up on many of the patches of prairie that had escaped the plow.

Rebecca Smith raised her hand and said "but there must be some prairie left, you saw the marsh hawk in a prairie." I answered yes, there is some prairie left in Illinois, about two to three thousand acres. Fortunately, most of this prairie is within Illinois Nature Preserves. The prairie I visit is in a Nature Preserve and it is protected by law from being plowed or harmed in any way. There are smaller tracts of prairie along roadsides, railroad beds and in pioneer cemeteries. These little prairies are unprotected and can be destroyed at any time. The biggest prairie in Illinois is at Goose Lake Prairie State Park where there is 1,537 acres of prairie. Altogether, though, precious little prairie remains in Illinois. It is estimated that only one-hundredth of one percent of the prairie is left in the prairie state.

After I told the class how much prairie is left in Illinois, Mary Pat jumped out of her seat and said "one hundredth of one percent, that's not very much prairie — where do all of the prairie animals live"? I told Mary Pat that some prairie animals, like dickcissel, meadowlark and thirteen-lined ground squirrel have been able to substitute other open grassy habitats for their old prairie homes. These animals have learned to live in open habitats such as pastures, old fields, grassy roadsides, cemeteries, golf courses, fencerows, parks and lawns.

Most prairie animals, however, have not been so lucky. These animals, like the bison and elk, must have a large prairie home to survive. These "prairie or bust" animals have left Illinois for good. Other animals, like the prairie chicken, upland sandpiper, white-tailed jackrabbit and yes — even the marsh hawk, are endangered in Illinois. These animals, along with many prairie plants, are in danger of extinction because there is so little prairie habitat left for them.

Then, Journal, Ms. Wade asked the last question. She asked "what is going to happen to the last strongholds of prairie in Illinois, and all the plants and animals that live in them, who is in charge of taking care of our prairies?" To answer Ms. Wade's question, I showed the class this page from you, Journal.



What a special day on the prairie. I discovered the nest of six short-eared owlets. I didn't want to frighten the little birds so I froze in the grasses and watched. It was such a neat sight — those owlets — with their big eyes and their downy little bodies. As I stood there, I realized I was seeing a wonder of nature that many, many generations of people that lived before me, must have also seen. Those owlets, like all animals, and the prairie they live in, are my natural heritage. I hope my children and their children can share this natural heritage. As I sneaked away from the owlets, I knew I had not scared the little birds. I felt good about that, because it is up to people, just like me, to protect and care for the prairie and its plants and animals. Our natural heritage is in *our* hands.

YOUR REPORT

1. Describe the prairie world Julia visited during the month of December, and during the months of February and March.
2. Do new species of grasses and wildflowers come into bloom each week on the prairie from March to November? List some of the colors a person can see in a prairie during the warm months.
3. What was the brown bird Julia had been waiting to see? Describe how this bird flies and catches its prey.
4. After Julia saw the brown bird, she felt like she was a part of the prairie and its beauty. Can you explain why she felt this way.
5. How large was the grassland that covered much of North America 400 years ago? Where did Illinois lay in this grassland?
6. How many acres of Illinois was grassland? Where did tall grasses grow? Where did the mid-sized grasses grow?
7. What did the grassland look like to the European settlers? What word did the explorers use to describe the grassland?
8. Describe now the native Americans made a living on the prairie. Did the native Americans live in harmony with the prairie?
9. Why were the first white settlers impressed with the prairie?
10. Describe the fires on the prairie and how they were started. Why is fire a friend to the prairie? How do prairie plants survive fire?
11. How and why did the settlers "break" the prairie? Did the settlers live in harmony with the prairie?
12. How much prairie is left in Illinois and where can it be found?
13. Have some prairie animals learned to live in other open grassy habitats? If so, name some of these open habitats.
14. Why have some "prairie or bust" animals left Illinois for good? Why are some prairie plants and animals endangered?
15. Who is responsible for protecting and caring for our prairie natural heritage? Why do *you* think it is important to take care of our natural heritage?

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The Marsh Hawk, A prairie bird of prey

DIRECTIONS FOR ASSEMBLY OF MARSH HAWK

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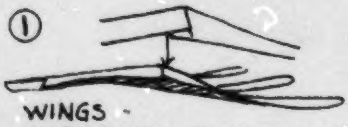
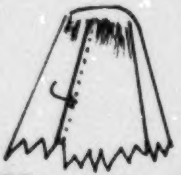


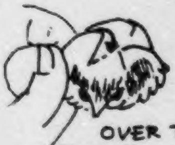
WINGS - CAREFULLY FOLD ON DOTTED LINES - GLUE CUT OVER TO DOTTED LINE. TO CURVE, GENTLY CURL WITH SCISSORS.

②



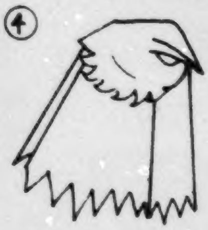
CUT ALL SLITS IN THE HEAD PIECE. GLUE THE BACK SLIT OVER THE X TO THE DOTTED LINE. (THE WINGS SLIDE INTO THE OTHER SLITS) GLUE THE SIDES OVER TO THE DOTTED LINES - THE SHAPE WILL BE LIKE A FLAT-TOP TENT.

③



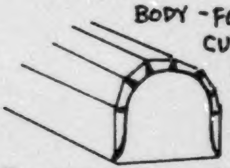
EYE - PIECE - CUT SLITS & GLUE OVER TO DOTTED LINE - GLUE BACK SLIT OVER TO DOTTED LINE - CUT SLITS (FRINGE) AROUND FACE & FLUFF IT OUT

④



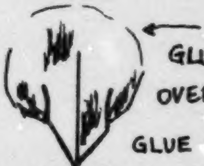
MATCH THE ROUNDED PART BENEATH THE EYE TO THE DOTTED LINES ON THE FRONT OF THE HEAD PIECE & GLUE IN PLACE

⑤



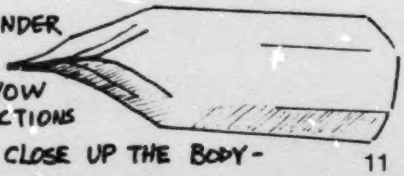
BODY - FOLD ALL DOTTED LINES - CUT ALL SLITS (SOLID LINES) - GLUE WHERE INDICATED - FOLD X TABS & SMALL TABS TOWARD EACH OTHER - GLUE FRONT FLAP OVER ALL TABS

⑥



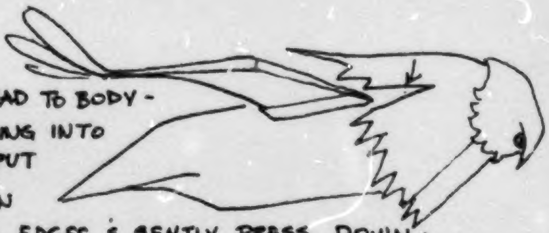
GLUE TAIL FLAP OVER THE O TABS

GLUE UNDER TAIL OVER Y TABS TO THE DOTTED LINE - NOW GLUE BOTH TAIL SECTIONS TOGETHER - THIS WILL CLOSE UP THE BODY -



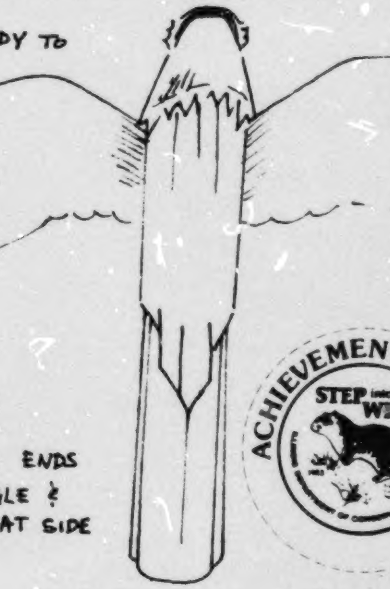
⑦ GLUE WINGS TO BODY AT A & B - GLUE FIRMLY!

⑧

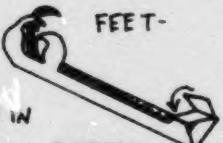


GLUE HEAD TO BODY - SLIDE WING INTO SLITS PUT GLUE ON POINTED EDGES & GENTLY PRESS DOWN. MOLD TO BODY SHAPE - (HEAD WILL BE POINTED DOWN)

⑨ GLUE TAIL UNDER BODY TO THE DOTTED LINE. MOLD TO CURVE OF BODY.



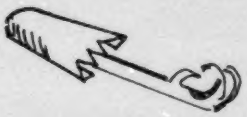
⑩ FEET -



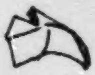
FOLD IN HALF ON DOTTED LINE. FOLD SQUARE ENDS OVER TO FORM TRIANGLE & GLUE - NOW GLUE FLAT SIDE UNDER BODY ON X

ACHIEVEMENT COUPON
STEP into the WILD

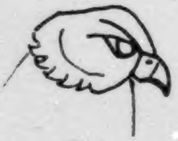
⑪ LEG FEATHERS - FOLD SIDES UNDER ON DOTTED LINE & GLUE TO BODY OVER TOP OF LEG.



⑫ BEAK.



FOLD ON DOTTED LINES - GLUE TIPS OF BEAK TOGETHER. ATTACH BEAK TO POINT ON HEAD. ADJUST IT TO FIT FACE.



⑬

HANGER - PUNCH HOLES - FOLD IN HALF - GLUE TO BIRD'S BACK - USE ONLY IF YOU WISH TO HANG THE HAWK IN FLIGHT.

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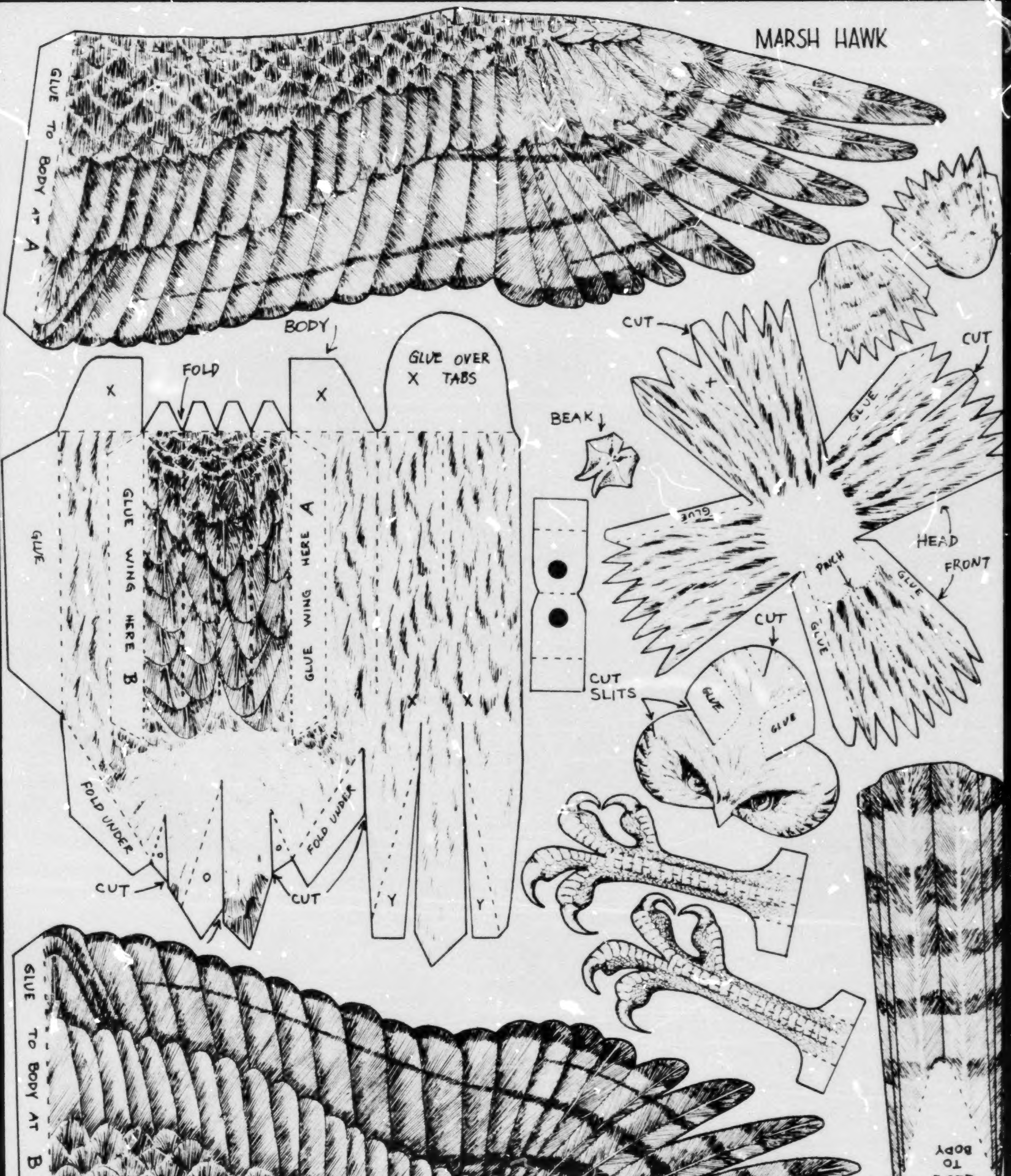
MARSH HAWK


GLUE TO BODY AT A
BODY
FOLD
X
X
GLUE OVER X TABS
GLUE
GLUE WING HERE B
GLUE WING HERE A
X
X
FOLD UNDER
FOLD UNDER
CUT
CUT
O
O
Y
Y
BEAK
CUT
X
CUT
GLUE
GLUE
HEAD
FRONT
PINCH
GLUE
GLUE
CUT
CUT SLITS
GLUE
GLUE
GLUE TO BODY
GLUE TO BODY AT B
CUT

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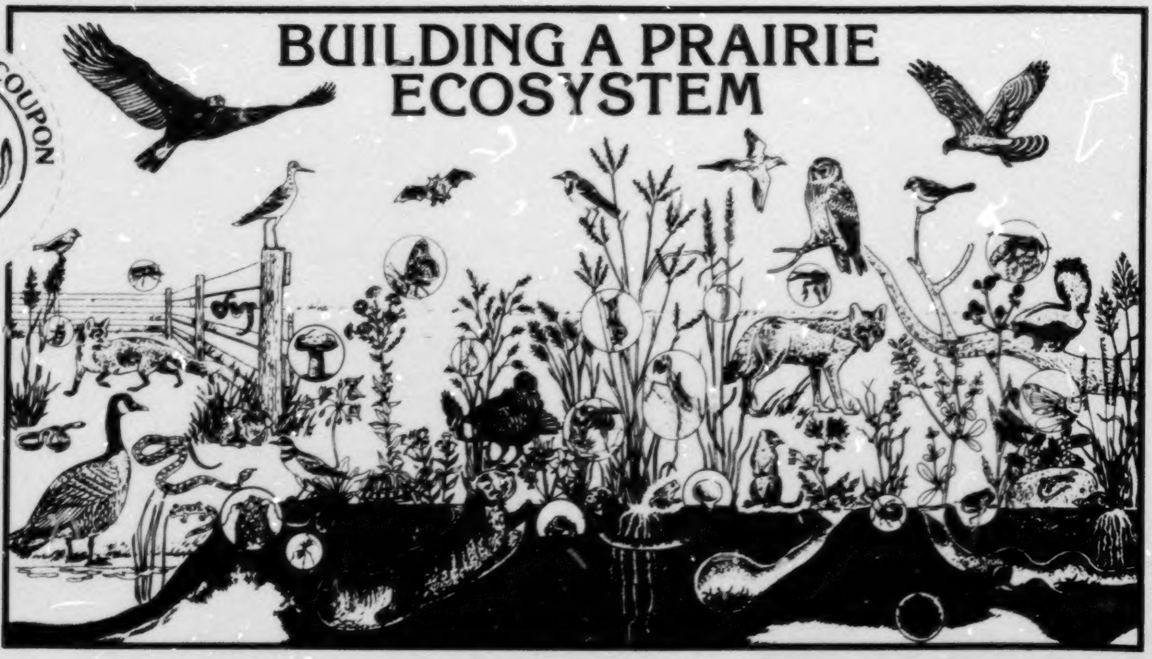
ACHIEVEMENT COUPON
STEP into the WILD

BUILDING A PRAIRIE ECOSYSTEM



WHAT IS A PRAIRIE ECOSYSTEM?

Pictured above is a prairie ecosystem. But what do we mean by the word ecosystem and what are the features of a prairie ecosystem? Let's look carefully at the ecosystem shown above and find out. As you can see, the ecosystem includes water, soil and air. It also includes a variety of plants and animals. Altogether, there are 63 different species of plants and animals shown in this ecosystem. Each of these plants and animals has its own special place to live and role to play in the ecosystem. For example, the plains pocket gopher rarely sees the light of day because it spends most of its life below ground. The marsh hawk, on the other hand, lives its life out in the open air. While the plains pocket gopher digs out underground tunnels in search of plant roots for food, the marsh hawk flies above the prairie until it spots a small mammal as prey.

Plants, too, have their own special places in the ecosystem. For example, pasque flower is a very short plant that cannot survive if it is shaded out by taller plants. But there is no danger of that happening because the pasque flower blooms on the prairie in March, many weeks before the taller plants such as Indian grass and little bluestem bloom. This way the little pasque flower has its own spot on the prairie where there is plenty of sunshine. By the time the taller plants are in bloom, the pasque flower has completed its life cycle for that year. The special place and role a plant or animal species, such as pasque flower or plains pocket gopher, has in an ecosystem is called its *niche.* By having its own niche, every species is guaranteed its own space and share of food. This reduces competition between species and prevents some species from being crowded out of the ecosystem.

Just because different plants and animals in an ecosystem have their own niche, it doesn't mean they don't have to live together. Think of the way you live together with your family in your home. You have your own niche because you have your own space to sleep and food to eat but you also have to share the rest of the space and food in your home. Plants and animals also live together and share the resources of the ecosystem. All of the plants and animals in the prairie ecosystem shown above are living together as a cooperative community.

Each part of the ecosystem, whether it be the soil, water or a plant or animal, provides things that other parts of the ecosystem needs. For example, the soil is a shelter for animals and a base from which plants can grow. Those plants provide food and cover for smaller animals. Those smaller animals are taken as prey by larger animals who also benefit from the cover provided by plants. Animals also help plants. Insects carry pollen from one plant to another and birds that pick apart the fruits of plants help scatter seeds that will someday grow to be new plants. Natural elements such as sunshine, rain and wind also have important roles to play in the ecosystem. Sunshine supplies the energy plants need to grow, both plants and animals need water from rainfall, and the wind carries the pollen and seeds of plants to new locations in the prairie.

Given all of this information, explain what you think an ecosystem is. ______________________________

____

____

____

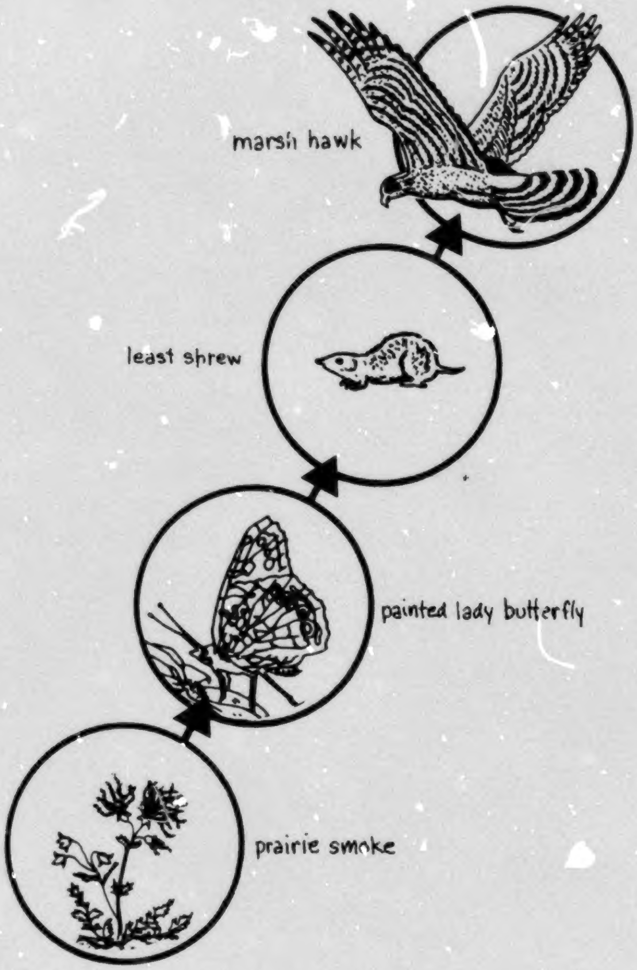
BUILDING AN ECOSYSTEM:

Over the next 21 pages, you will be learning about and working with over 70 features of a prairie ecosystem. You will start by learning about the role of the soil in the prairie and finish by studying the place and function of mammals in the prairie ecosystem. After you have investigated these features of the prairie ecosystem, you will have a chance to cut out each of those features and place them together as an ecosystem. As a beginning, cut out the elements of the soil as well as the grasses and forbs and put them together to form the base of the ecosystem. Then cut out each of the insects, amphibians, reptiles, birds and mammals and place them as you please in the ecosystem. When you are finished, you will have *built your very own Prairie Ecosystem.* If you wish, you can use the prairie ecosystem shown at the top of this page as a guide. You can also use the GIANT PRAIRIE COLORING SHEET which is a larger version of the same ecosystem.

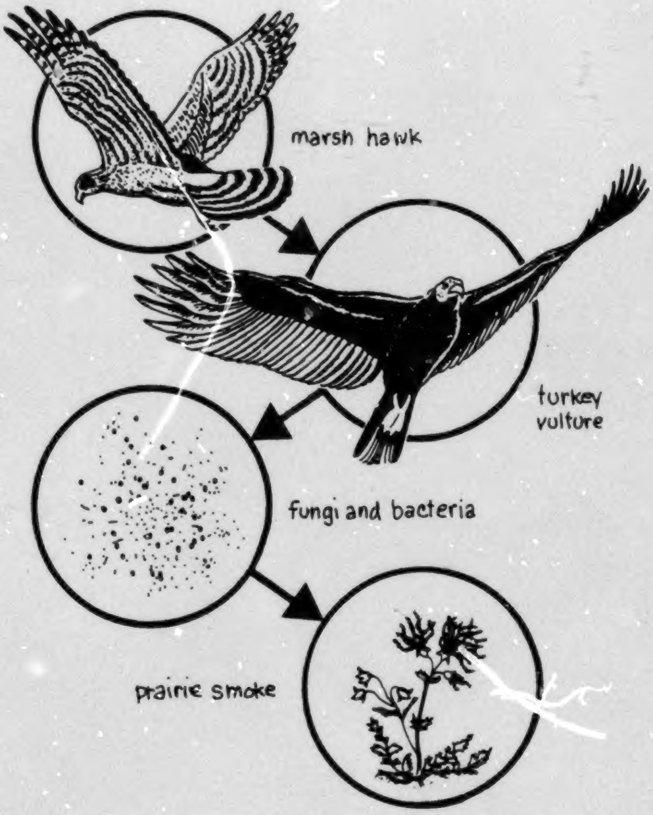
THE GREAT FOOD CHASE

ACHIEVEMENT COUPON
STEP into the WILD

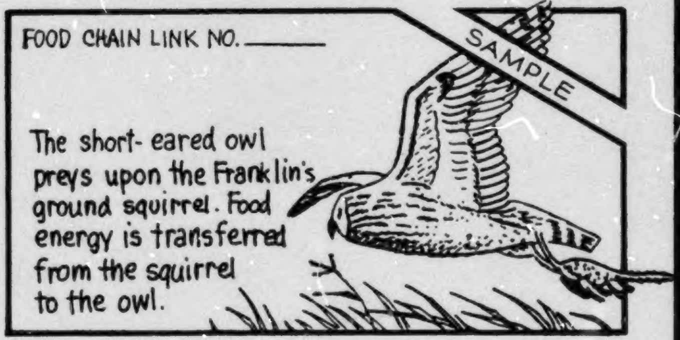
As you study and build your prairie ecosystem, you will notice that food is first produced in the ecosystem by plants. Those plants are eaten by animals who in turn are eaten by other animals. The flow of food energy from a plant to an animal to another animal is called a *FOOD CHAIN*. In the prairie ecosystem shown above, there are many food chains. Here is an example of one food chain.



In this food chain, the marsh hawk is at the top of the food chain. If an animal is at the top of its food chain it has no natural predators. But this doesn't mean that the animals at the top of their food chains don't contribute to the food supply. They do when they die. Their bodies are fed upon by scavengers such as the turkey vulture and American carrion beetle. When these scavengers die, their bodies are attacked by fungi and bacteria. These fungi and bacteria break down the body parts into important nutrient elements such as carbon, nitrogen and potassium. These nutrient elements are then stored in the soil until they are taken into the roots of a plant and used to help the plant grow. Considering this information, we can expand the food chain we started.



As you can see, our food chain is back where it started with prairie smoke as its first link. Over the next pages, you will have to chase the flow of food through one food chain in the prairie ecosystem. You can do that by fitting together in proper order the food chain links you will see as you study the different features of the ecosystem. There are seven food chain links. They look like this:



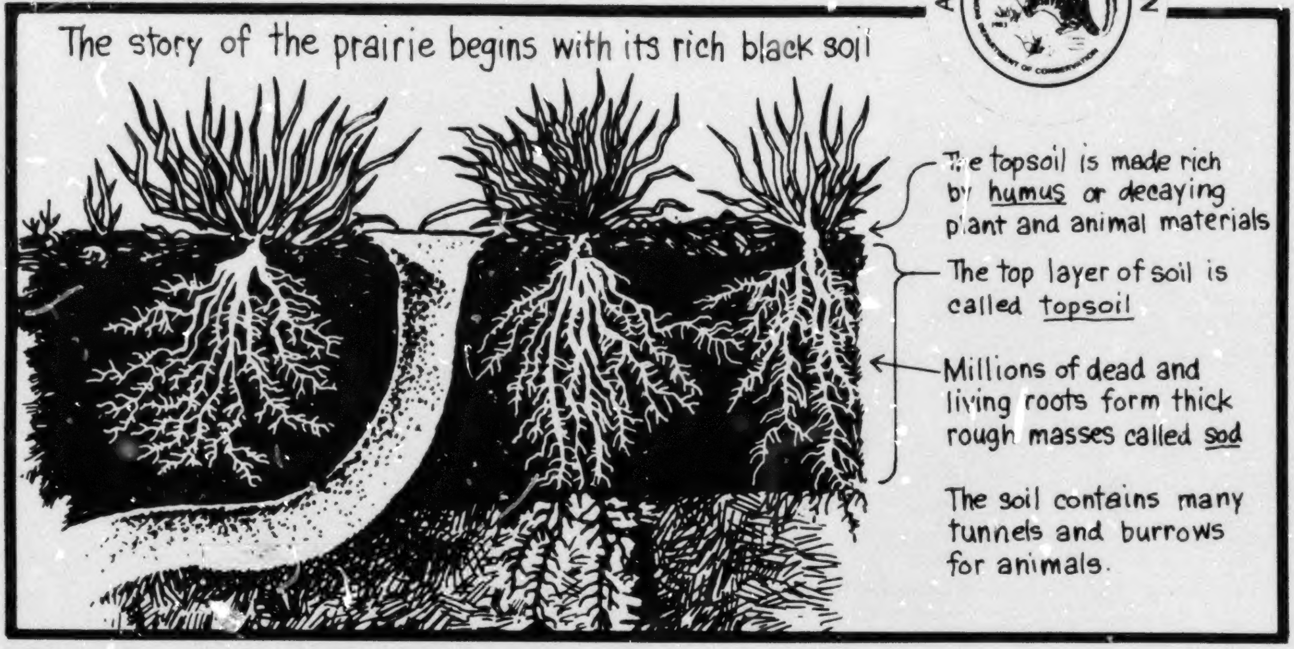
FOOD CHAIN LINK NO. ______

The short-eared owl preys upon the Franklin's ground squirrel. Food energy is transferred from the squirrel to the owl.

Here are three clues: you should read carefully all of the information on the page where the food chain link is drawn, the links are not necessarily in the proper order as they appear, and the first food chain link is a plant and the last involves a dead animal.

Prairie Soil

ACHIEVEMENT COUPON
STEP into the WILD


The story of the prairie begins with its rich black soil
The topsoil is made rich by humus or decaying plant and animal materials
The top layer of soil is called topsoil
Millions of dead and living roots form thick rough masses called sod
The soil contains many tunnels and burrows for animals.

The Role of Soil in the Prairie Ecosystem:

The tough prairie sod is a great conserver of water and soil. When it rains on the prairie, the sod acts like a giant sponge catching and holding the rain water. As a result, the amount of water runoff from the prairie is small compared to other lands where there is no strong network of roots to absorb the rain. Those same roots also bind the soil tightly to the earth, protecting it against *erosion* or the washing or blowing away of soil from the forces of water and wind. The roots in the soil are not only strong, they are numerous. A square yard of soil four inches deep may contain roots that would stretch for twenty miles if all were placed from end to end.

In or on the prairie soil, as many as 641,000 fungi and more than 20 million bacteria per acre are at work breaking down dead plant and animal materials into important nutrient elements such as carbon and nitrogen. Those nutrient elements are stored in the soil until they are taken in through the roots of plants. The end result is that dead materials are recycled into nutrient elements that can be used to help plants grow. This is what is meant by *nutrient element cycling.*

FOOD CHAIN LINK NO. ______

Bacteria and fungi in soil break down turkey vulture into nutrient elements. This food energy is stored in soil until taken into the roots of a plant.

The prairie soil is not only a storehouse of nutrients for plants, it is also a shelter. When harsh weather or fire sweeps across the prairie, the roots and buds of plants are tucked away safely in the soil. And when the aboveground parts of plants wither and die in late summer and fall, the roots or buds live on through the winter, waiting to send new shoots up through the soil in spring.

Animals, too, depend on the soil as a refuge. The deer mouse builds its small nest underground and hoards seeds for winter use in burrows near its nest. The badger uses its burrow in spring as a nest chamber where it raises its young and sometimes in winter as a place to sleep for several days, although it does not hibernate. The Franklin's ground squirrel, on the other hand, hibernates in its burrow throughout the winter months. Many birds, reptiles and amphibians also find refuge and/or food at the soil level.

Working with the Prairie Soil:

Work Step #1. Using the word picture at the top of this page, explain the terms top soil, sod and humus.

Work Step #2. Explain how the soil is protected against water runoff and erosion. Why is this protection important?

Work Step #3. Explain what is meant by nutrient element cycling.

Work Step #4. On page 16, 13 elements of the prairie soil are drawn. Later you will use those elements to build a prairie ecosystem. But for the purpose of this exercise, it is necessary only to study and label them. You will notice that 9 elements have already been labeled. The only items not labeled are the burrows of the least shrew, badger, Franklin's ground squirrel, and plains pocket gopher. To help you label those burrows, consider these clues:

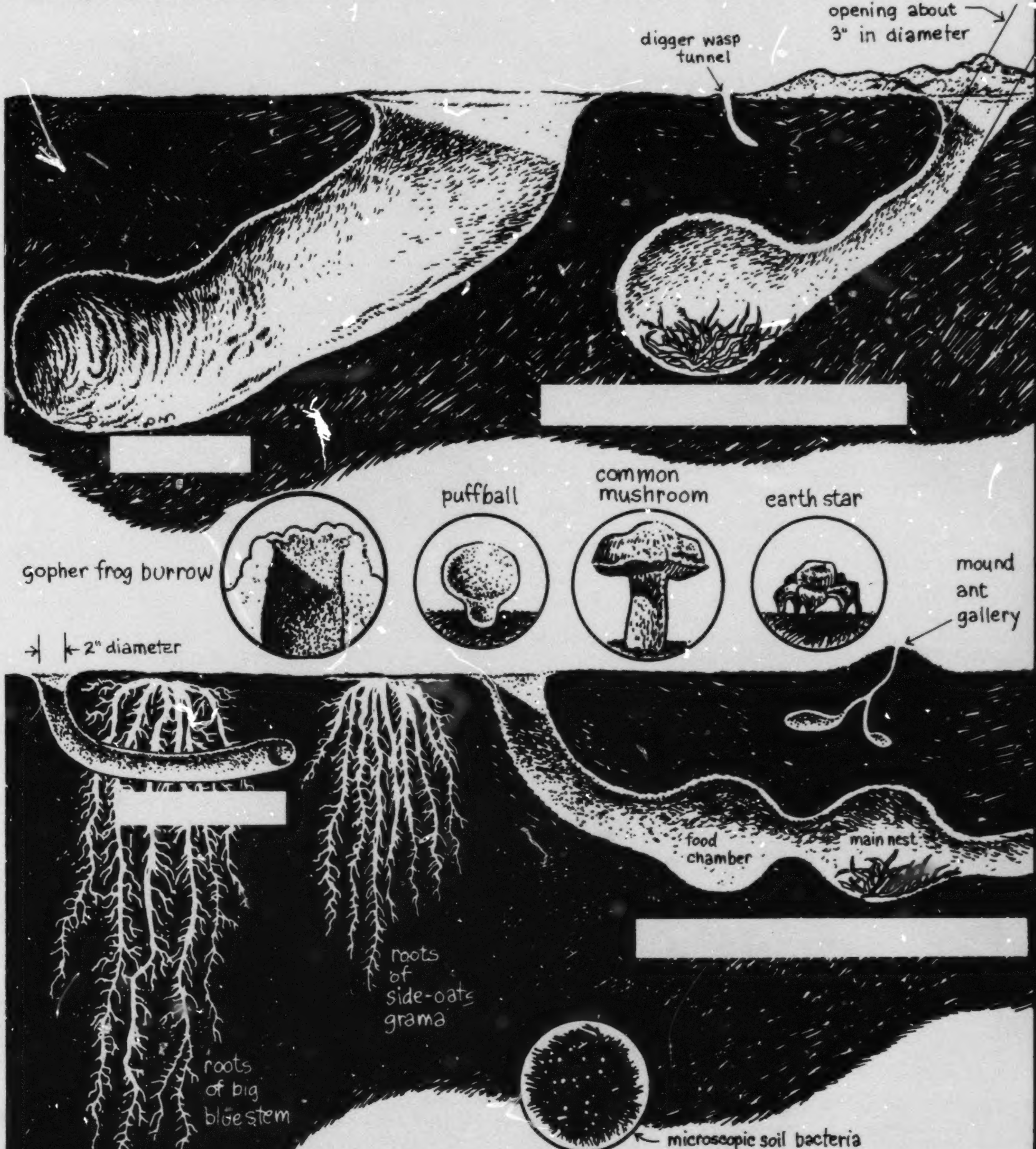
and plains pocket gopher. To help you label those burrows, consider these clues:

CLUE #1: The *badger* is 28 to 30" long from head to tip of tail.

CLUE #2: The least shrew is only 2 1/2 — 3 1/8" long. Its underground tunnels are about 2" in diameter.

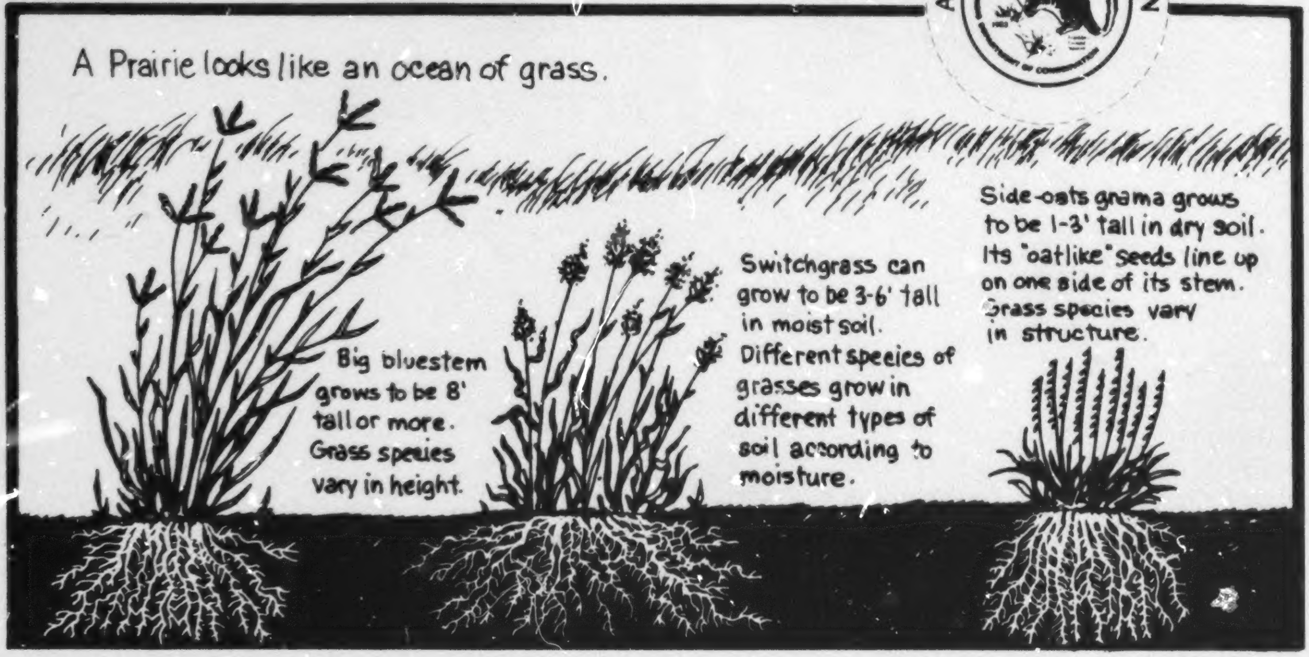
CLUE #3: The *plains pocket gopher* is 9 1/2 — 12 3/4" long. Its burrow system, which includes a main nest and several storage chambers for food, is several hundred feet long.

CLUE #4: The *Franklin's ground squirrel* is 14-16" long. Its burrow is usually about 3 inches in diameter and leads to a larger nest chamber.


opening about 3" in diameter
digger wasp tunnel
common mushroom
puffball
earth star
gopher frog burrow
mound ant gallery
2" diameter
food chamber
main nest
roots of side-oats grama
roots of big bluestem
microscopic soil bacteria

Prairie Grasses

ACHIEVEMENT COUPON
STEP into the WILD



A Prairie looks like an ocean of grass.

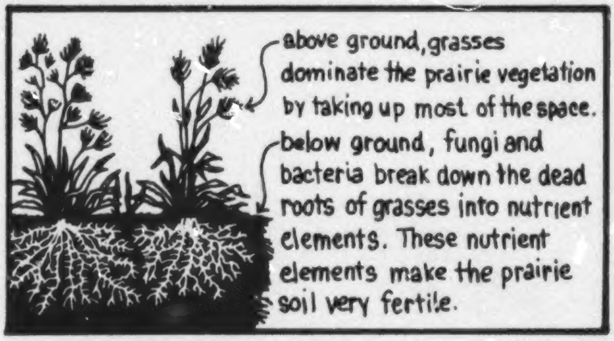
Big bluestem grows to be 8' tall or more. Grass species vary in height.

Switchgrass can grow to be 3-6' tall in moist soil. Different species of grasses grow in different types of soil according to moisture.

Side-oats grama grows to be 1-3' tall in dry soil. Its "oatlike" seeds line up on one side of its stem. Grass species vary in structure.

The Role of Grasses in the Prairie Ecosystem:

As you learned when you studied the soil of the prairie, the importance of grasses to the ecosystem begins underground. The massive network of grass roots anchors the soil to the earth, thereby preventing erosion. The roots, combined with the soil, form a tough mass called sod which works like a sponge to absorb rainwater. The nutrient elements in the dead roots of grasses are recycled and kept in the soil until they are used to provide energy for living plants.



above ground, grasses dominate the prairie vegetation by taking up most of the space.

below ground, fungi and bacteria break down the dead roots of grasses into nutrient elements. These nutrient elements make the prairie soil very fertile.

Working with Prairie Grasses:

Work Step #1. Using the drawing at the top of this page as a guide, name two differences amongst grass species.

Work Step #2. Read and study the descriptions below of eight grasses. On the blank lines following each grass description, write first the type of soil, according to moisture, that the grass grows in, and second, the height each grass grows to be.

Work Step #3. On page 18 are drawings of the eight grasses. Using the clues written beside each drawing, label each grass in the space provided.

Work Step #4. List three things grasses contribute to the prairie ecosystem.

1. **Big bluestem:** This grass grows to a height of 8' or more. It begins growing in late April and flowers in late summer. The seed head of its flower branches into three parts, looking something like a "turkey's foot". Big bluestem grows most commonly in moist soil. __________ __________

2. **Little bluestem:** This grass grows to be 2 to 4' tall. It grows from May until the first frost in fall. During spring and summer, the bottom shoots of little bluestem are bluish but by fall, they are a beautiful mixture of rust and gold. Its flowers are "feathery" and are covered with short, white hairs. Little bluestem grows in dry to moist soil in uplands. __________ __________

3. **Needlegrass:** This grass grows to be 2 to 4' tall in dry soil. It begins growth in April and flowers by June. This grass is sometimes called "needle and thread" because of its pointed seed that is as sharp as a needle. __________ __________

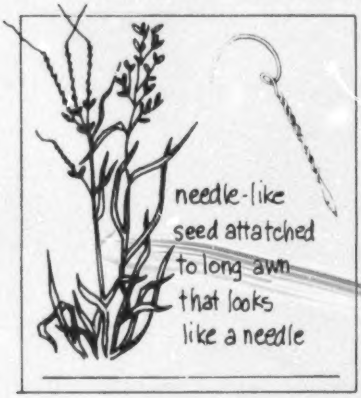
4. **Side-oats grama:** This 1 to 3' tall grass flowers during the summer. Its small (¼") "oatlike" seeds line up on one side of its stem. It is that arrangement which gives this dry soil grass its name. __________ __________

5. **Switchgrass:** This 3 to 6' tall grass is identified by a prominent nest of hair where the leaf blade attaches to the stem. This grass grows well in moist soil in bottomlands. __________ __________

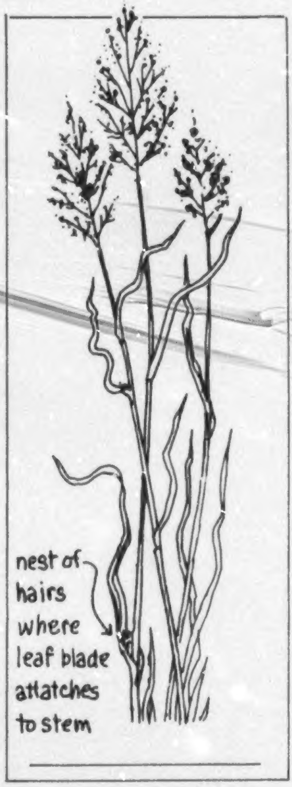
6. **Indian grass:** This 4 to 8' tall grass begins growing in dry to moist soil about the first of May and flowers during late July and August. Indian grass can be identified by the presence of a clawlike structure where the leaf blade attaches to the stem. __________ __________

7. **Nodding wild rye:** This 3½' tall grass begins growth in March or April and matures by July. Its dense flowers look like they are nodding as they curve downward. Nodding wild rye grows in dry to moist soil. __________ __________

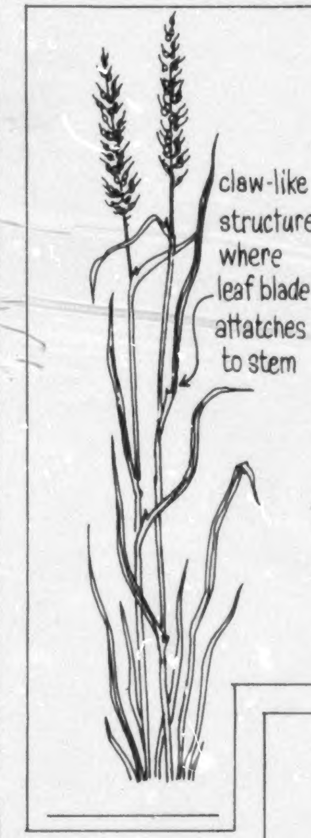
8. **Prairie dropseed:** This 2 to 3' tall plant stands very straight and has very long, narrow leaf blades. Prairie dropseed grows throughout the summer and flowers in the fall in dry soil. __________ __________


needle-like seed attatched to long awn that looks like a needle

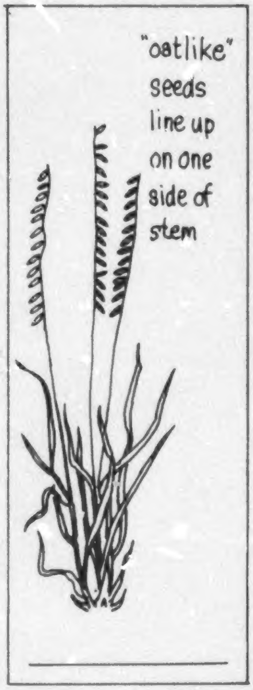
____


nest of hairs where leaf blade attatches to stem

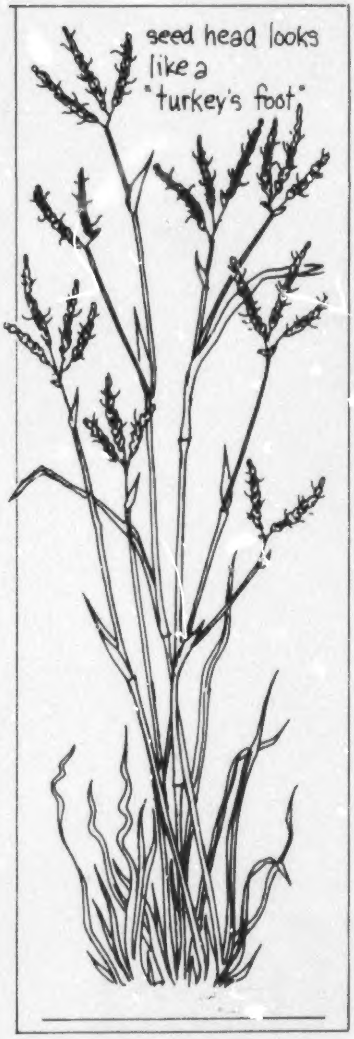
____


claw-like structure where leaf blade attatches to stem

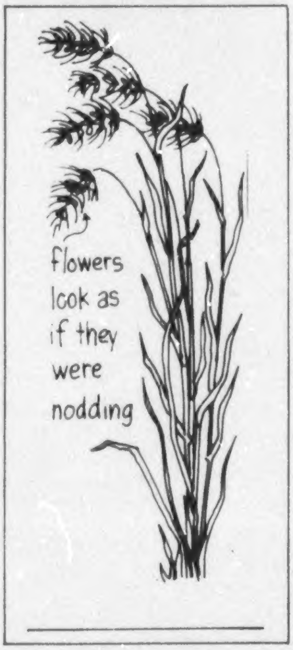
____


"oatlike" seeds line up on one side of stem

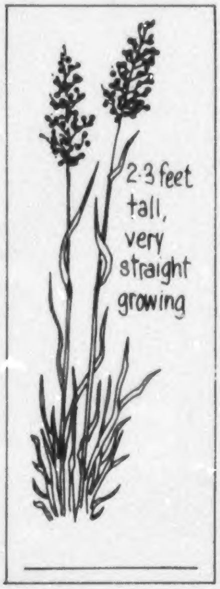
____


seed head looks like a "turkey's foot"

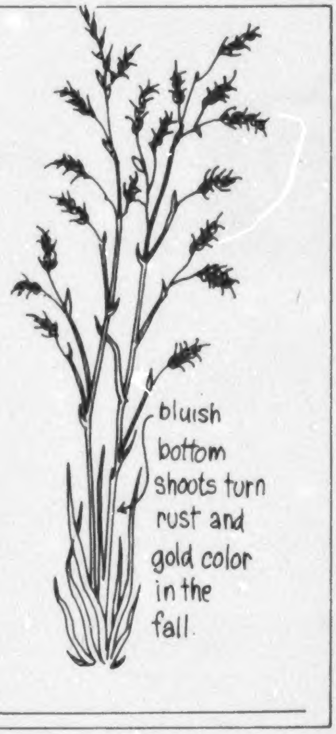
____


flowers look as if they were nodding

____


2-3 feet tall, very straight growing

____

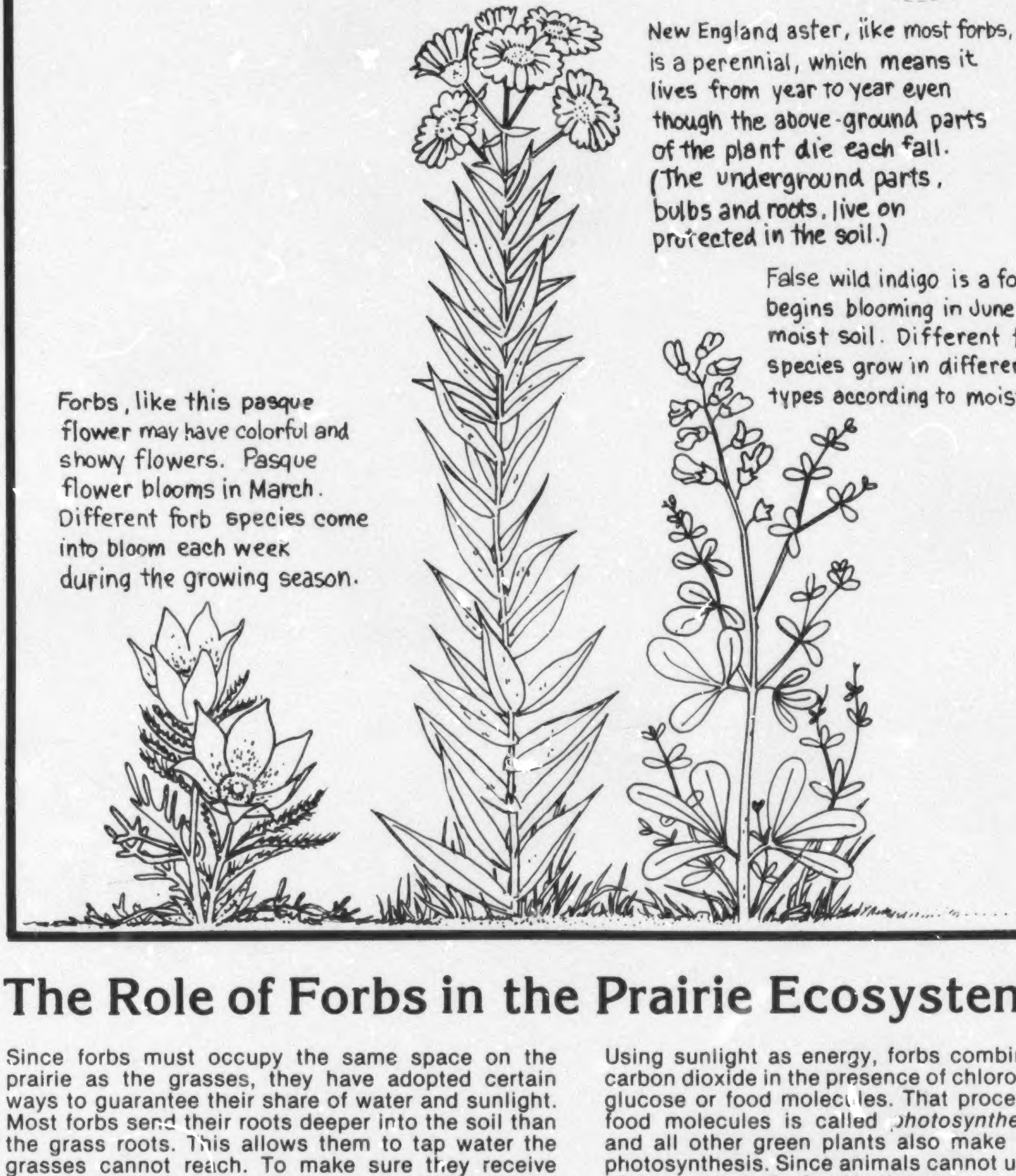

bluish bottom shoots turn rust and gold color in the fall

____

Prairie Forbs

ACHIEVEMENT COUPON
STEP into the WILD

Forbs are the beautiful wildflowers of the prairie.



New England aster, like most forbs, is a perennial, which means it lives from year to year even though the above-ground parts of the plant die each fall. (The underground parts, bulbs and roots, live on protected in the soil.)

False wild indigo is a forb that begins blooming in June in moist soil. Different forb species grow in different soil types according to moisture.

Forbs, like this pasque flower may have colorful and showy flowers. Pasque flower blooms in March. Different forb species come into bloom each week during the growing season.

The Role of Forbs in the Prairie Ecosystem:

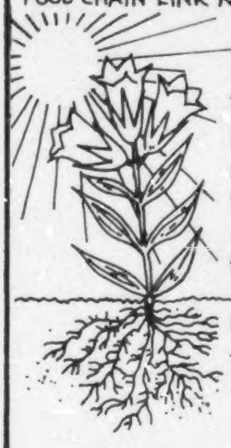
Since forbs must occupy the same space on the prairie as the grasses, they have adopted certain ways to guarantee their share of water and sunlight. Most forbs send their roots deeper into the soil than the grass roots. This allows them to tap water the grasses cannot reach. To make sure they receive enough sunlight to grow by, the shortest forbs bloom early in the spring before the grasses have had time to grow and overshadow them. During summer and fall, forbs that can stand as tall or taller than the grasses come into flower.

Reaching tall enough to capture sunlight is not only important for the survival of forbs, it is absolutely necessary for the well-being of the prairie ecosystem.

Using sunlight as energy, forbs combine water and carbon dioxide in the presence of chlorophyll to make glucose or food molecules. That process of making food molecules is called *photosynthesis.* Grasses and all other green plants also make food through photosynthesis. Since animals cannot use the energy of the sun to make food in the same way green plants can, animals depend upon plants as the *producers of food* in the prairie ecosystem.

Food is not the only thing forbs contribute to the prairie. Oxygen is also produced as a by-product during the process of photosynthesis. In fact, forbs, along with grasses, manufacture most of the oxygen in the prairie ecosystem.

FOOD CHAIN LINK NO. ________



Above ground, downy gentian takes in sunlight through its leaves. Using the sunlight as energy, it conducts photosynthesis to make food energy in its tissues. This is how food is first produced in the ecosystem.

Below ground, downy gentian takes in nutrient elements from the soil. The gentian uses the nutrient elements in the process of photosynthesis to make food energy.

Also, like the grasses, forbs contribute to the richness of the prairie soil. The *legume* forbs, which are forbs that produce a bean-like fruit, add nitrogen to the soil. When the deep roots of forbs die and decay, they leave channels in the soil that provide for the passage of air and moisture.

Working with Prairie Forbs:

Work Step #1. Using the word picture at the top of page 19 as a guide, explain four important features of forbs.

Work Step #2. Below are descriptions of eight prairie forbs. Two blank lines follow the description of each forb. On the first line, write down the month wherein the forb first blooms. On the second line, write down the type of soil according to moisture the forbs grow in.

Work Step #3. To the right and on page 21, are drawings of all eight forbs. Using the clues written beside each drawing, label each forb in the space provided.

Work Step #4. Explain how forbs obtain their share of water and sunlight even though they have to share the same space in the prairie as grasses.

Work Step #5. List three things forbs contribute to the prairie ecosystem.

downy gentian: 8-16". This dry soil forb blooms in September and has deep blue, tubular-shaped flowers which have five petals. ________ ________

rattlesnake master: 3-4'. This forb begins blooming in July in dry to moist soil. Its balls of flowers are white, hard, and prickly. ________ ________

shooting star: 8" to 2'. This forb begins blooming in April in dry-wet soil. The petals of its white to pink flowers are curved sharply upward. ________ ________

partridge pea: 24" or more. This forb blooms in sandy soil in August. Unlike most legume forbs, its flower is not pea-shaped, but is very showy and yellow in color. ________ ________

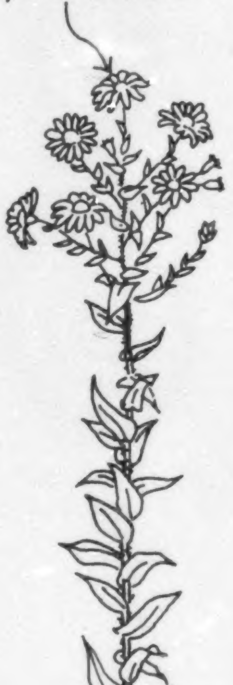
New England aster: 18 to 40". This forb blooms in October in moist soil. Its large, violet to red-purple flowers have yellow centers. ________ ________

pasque flower: 4"-10". This forb begins blooming in March in dry soil. Its leaves are deeply cut into narrow lobes and are covered with long, silky hairs. ________ ________

wild false indigo: 3½'. (See word picture for blooming time and soil type). The delicate flowers of this legume forb are white and pea-shaped. ________ ________

prairie smoke: 6" to 16". This forb blooms in May in dry to moist soil. The long, feathery hairs in its seed head give it the look of a "puff of smoke". ________ ________

Violet to red-purple flowers have yellow centers.



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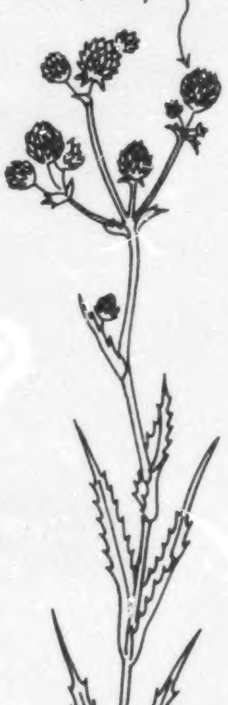
ball-like flowers are white, hard and prickly



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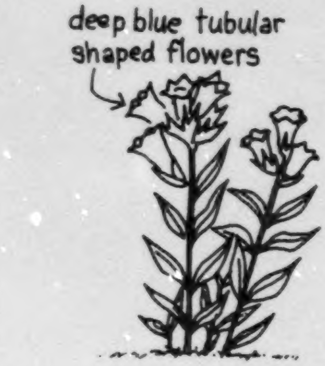
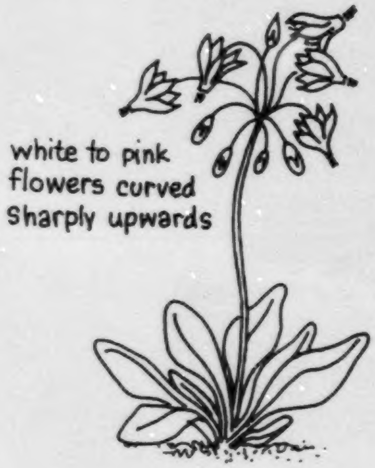
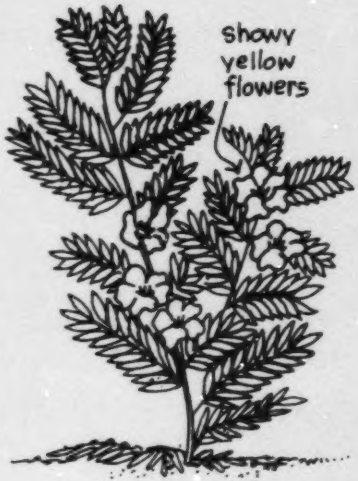
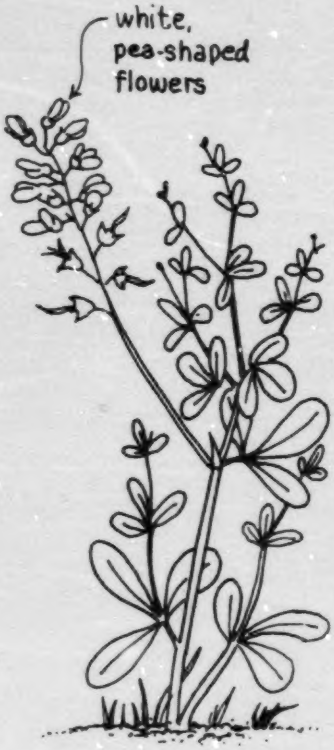
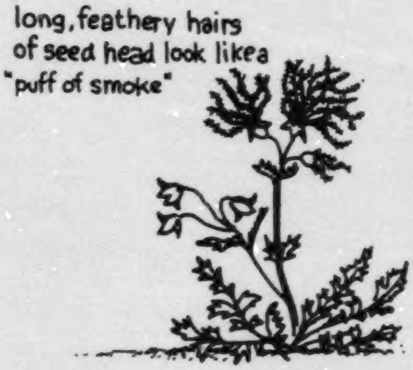
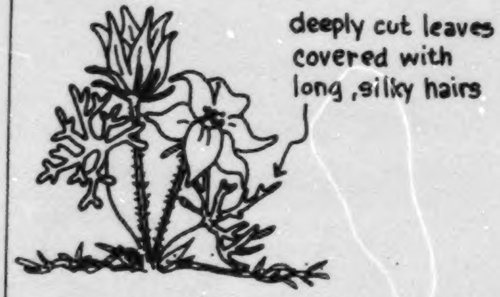

deep blue tubular shaped flowers


white to pink flowers curved sharply upwards

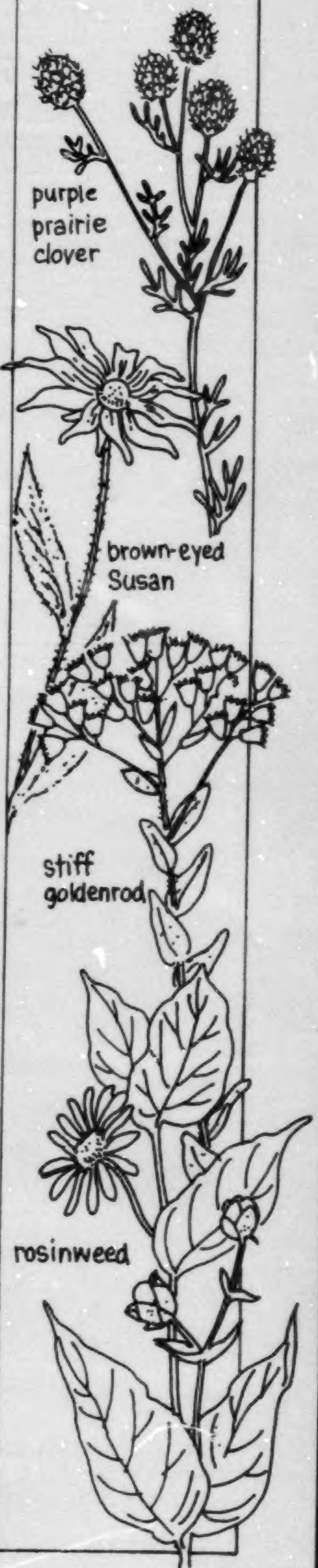

showy yellow flowers


white, pea-shaped flowers


long, feathery hairs of seed head look like a "puff of smoke"


deeply cut leaves covered with long, silky hairs

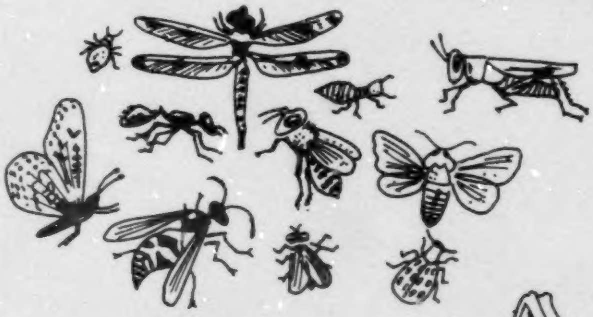
some more Prairie forbs


purple prairie clover
brown-eyed Susan
stiff goldenrod
rosinweed

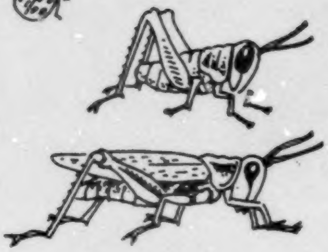
Prairie Insects

ACHIEVEMENT COUPON
STEP into the WILD

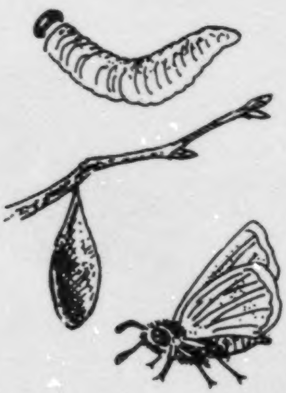
The prairie is home for millions of insects



Most common prairie insects are dragonflies, wasps, ants, bees, grasshoppers, termites beetles, aphids, butterflies, moths, and flies.



Insects exist on the prairie in many forms, first as immature forms and later as adults. Immature insects are known as nymphs or larva. Nymphs, such as this immature grasshopper, look rather like their parents and grow by a series of molts until they reach the size of the adult. The development of a nymph into an adult is called an incomplete metamorphosis.

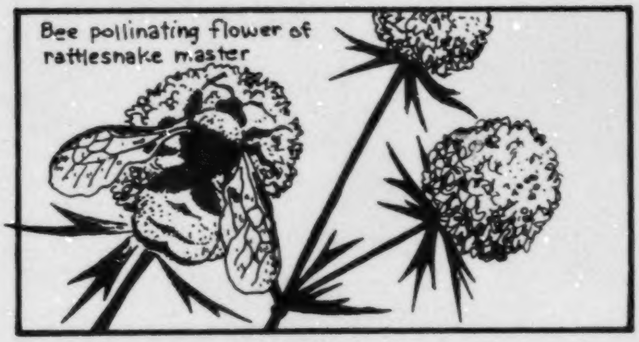


Larvae, such as this least skipper caterpillar, look nothing like their parents. Larvae also grow by a series of molts but then they rest as a complete metamorphosis changes them into adults. This resting period is known as the pupal stage of growth. For its pupal stage, the least skipper caterpillar spins a protective cocoon in which it changes into a least skipper butterfly.

The Role of Insects in the Prairie Ecosystem:

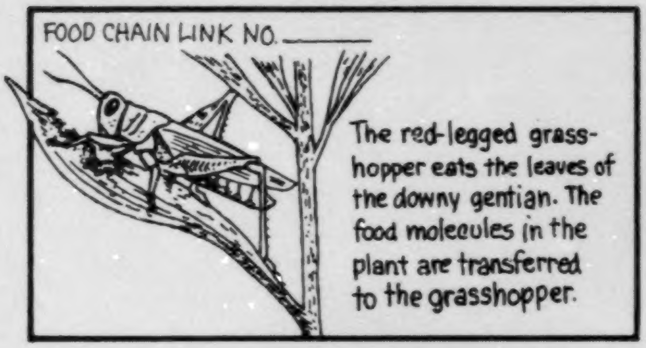
The prairie ecosystem could not exist without the important work performed by insects. The four most important jobs performed by insects are 1) pollination, 2) food processing, 3) decomposition of dead plant and animal materials and 4) soil tillage. To understand how insects carry out these four jobs on the prairie, study the four case examples below.

Case Example 1: The gold and black bumble bee demonstrates how insects help carry out *pollination*. Pollination is the process whereby either wind or insects carry *pollen* from the male part of flowers to the female part of other flowers. The pollen fertilizes the seeds inside the ovary of the female flowers and they



Bee pollinating flower of rattlesnake master begin to ripen and mature. Wind carries the pollen of grasses but most forbs depend upon insects to move their pollen about the prairie. In the case of the bumble bee, individual bees are attracted to the showy and fragrant flowers of forbs. When a bee settles into the flower, it begins feeding on the nectar and/or pollen put out by the flower. Some of the pollen rubs off onto the hairy body of the bee. When that same bee visits another flower, some of the pollen from the first flower, rubs off onto the second. This is how the bumble bee carries pollen from one plant to another. Without the help of the bumble bee and other insects that feed on pollen and nectar, pollination would not be possible and plants would not be able to reproduce. The miracle is that both plants and insects benefit.

FOOD CHAIN LINK NO. ______



The red-legged grasshopper eats the leaves of the downy gentian. The food molecules in the plant are transferred to the grasshopper.

Case Example 2: The red-legged grasshopper demonstrates how insects process food on the prairie. You learned on page 14 that the forbs and grasses are the primary producers of food energy. The red-legged grasshopper makes direct use of that energy by eating grasses and the leaves of forbs. With the plant food it eats, this reddish-green grasshopper builds the tissues in its body. Eventually, the grasshopper will be eaten by another animal, maybe an amphibian, like the American toad. When that happens, the food energy that was once in the plant parts the grasshopper ate, is transferred to the toad. This is how the grasshopper turns the tissues of plants into an animal food supply that can be used by other members of the ecosystem. You could say that the grasshopper's work is to be eaten by other animals. Because the grasshopper and many other insects process plant food into animal food, they are said to be *the primary consumers* in the ecosystem. It is important to note, however, that some insects prey upon other insects. The praying mantis, for example, is a fierce predator of other insects. Thus, some insects are not primary consumers, but rather *secondary consumers.*

Case Example #3: The American carrion beetle, a small black beetle, demonstrates how insects help with the decomposition of dead plant and animal material. The adult beetle flies about the prairie and locates a dead animal by scent. The adult lands beside the body and crawls into the soil beneath it and lays eggs. The eggs hatch in a few days and the larvae feed on the carcass until nothing is left but important nutrient elements. These nutrient elements are then stored in the soil until they are taken into the roots of plants. In this way the carrion beetle and all other scavenger insects help with the decomposition of dead material. In addition to cleaning up rotting debris, these insects help recycle nutrient elements.

Case Example #4: The mound ant, a tiny black ant, demonstrates how insects till or plow the soil. Mound ants burrow out elaborate tunnels in the soil which lead to galleries. In these galleries, the ants live in a colony which includes a queen ant, and worker ants who attend to the larvae. The mound ants and all other insects that burrow into the soil, help keep the soil loose enough to absorb water and air.

Working With Prairie Insects:

Work Step #1: Using the word picture at the top of page 21 as a guide, name the most common insects of the prairie. Explain how nymphs mature into adults and how larva mature into adults.

Work Step #2: Written below are descriptions of ten insects. Following the description of each insect are the numbers 1, 2, 3, 4. Those numbers refer to the four most important tasks insects perform in the prairie ecosystem: 1-*pollination* (as demonstrated by the bumble bee in Case Example #1), 2-*food processing* (as demonstrated by the red-legged grasshopper in Case Example #2), 3-*decomposition of dead plant and animal materials* (as demonstrated by the carrion beetle in Case Example #3) and 4-*soil tillage* (as demonstrated by the mound ant in Case Example #4). Judging from what the description says about each insect, circle the number of each task you believe that insect carries out. If both the larva and the adult are described, make your judgement based upon the activities of both. To help you get started, consider this clue. All of the insects are eventually eaten by some other animal. Thus, it is correct to say that all the insects perform task 2.

Work Step #3: On page 24 are illustrations of 14 insects, the ten described and the four used in the case examples. Using the clues provided beside each illustration, label each insect.

flesh fly: This black fly has gray markings. Its larva feeds on decaying vegetation and dead animal parts. The adult feeds on the nectar of plant flowers.
1. 2. 3. 4.

robber fly: This brown fly is a fierce predator. It can capture another insect on the wing, drop to the ground, and suck the prey dry in a matter of seconds. The larva of the robber fly is also a predator, feeding on tiny insects in the soil. 1. 2. 3. 4.

least skipper butterfly: This golden brown butterfly sips nectar from flowers and also eats decaying plant materials lying in the prairie soil. 1. 2. 3. 4.

painted lady butterfly: This beautiful butterfly has orange to gray wings that are marked by splashes of pink, black markings and white spots. In search of nectar, this butterfly visits the flowers of prairie forbs.
1. 2. 3. 4.

spotted cucumber beetle: This greenish-yellow beetle is covered with eleven black spots. Its larva feeds on the dead roots of grasses and forbs. The adult feeds on the leaves and flowers of forbs. 1. 2. 3. 4.

digger wasp: This hairy, black wasp has reddish-orange markings on its abdomen. The adult wasp feeds on the nectar of flowers. The female adult burrows into the soil in search of beetle larvae, sometimes tunneling a few feet deep. Upon finding a beetle larva, it stings it and then digs a tiny cell around the body. The adult then lays one egg on the back of the larva. When the wasp larva emerges, it feeds on the body of the beetle larva.
1. 2. 3. 4.

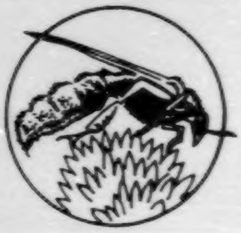
aphids: This small, pear-shaped insect sucks the juices of plant stems and leaves. The aphid discharges a clear, watery liquid, called honeydew. Ants feed on this honeydew. 1. 2. 3. 4.

praying mantis: The long fore legs of this green insect give the impression it is praying. The truth is that this insect does another type of preying, upon grasshoppers, crickets, bees, caterpillars, and flies. The nymph also preys upon other animals, including plant lice.
1. 2. 3. 4.

least skipper caterpillar: This insect is grass-green with a dark brown head. It slowly works its way up and down grasses, munching on the tender shoots as it goes. 1. 2. 3. 4.

tumblebug: The ¾" dull black adult is sometimes marked with a greenish or coppery tinge. The male and female adult roll a ball of animal dung across the prairie floor. After the dung is pressed and round, the adults dig a tunnel in the soil and drag the ball of dung into it. The female then lays an egg on the dung. The larva hatches later and feeds on the dung until it develops into an adult.

Prairie Insects



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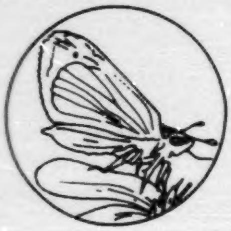
hairy and black, reddish orange markings



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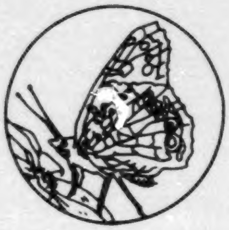
golden brown, sips flower nectar



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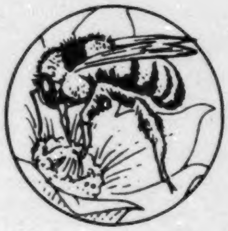
marked by splashes of pink, black and white



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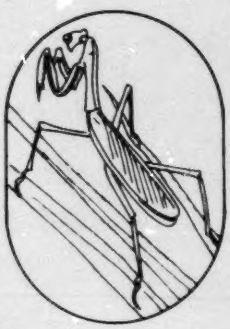
black and gold, important in pollination



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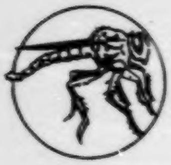
forelegs look like praying hands



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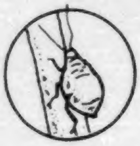
brown fly, fierce predator



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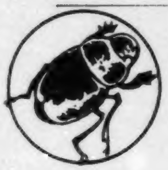
pear shaped, discharges honeydew



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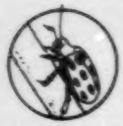
dull black, buries dung



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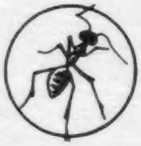
has 11 black spots



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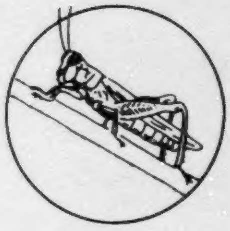
tiny black ant, burrows tunnels



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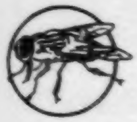
one inch long, reddish green



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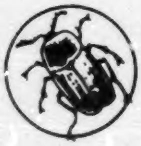
black fly with gray markings



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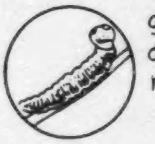
small black beetle



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grass green, dark brown head

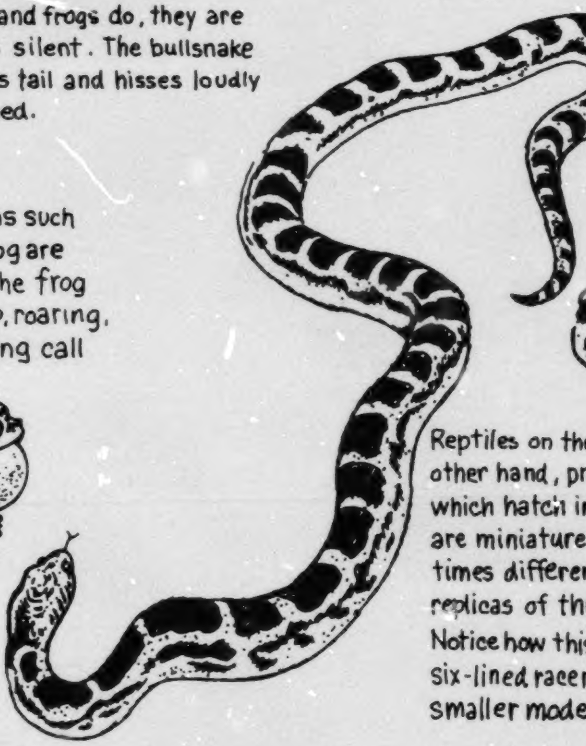
Prairie Amphibians and Reptiles:

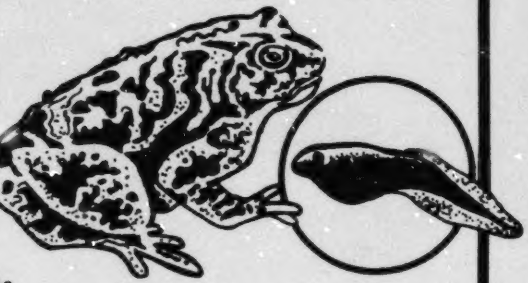
ACHIEVEMENT COUPON
STEP into the WILD

Amphibians and reptiles bring music and variety to the prairie.

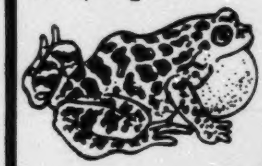
Though reptiles do not vocalize as the toads and frogs do, they are not always silent. The bullsnake vibrates its tail and hisses loudly if threatened.

Like insects, amphibians, such as this American toad exist in two forms, first as a larva, (such as the tadpole) and then after a metamorphisis as an adult.

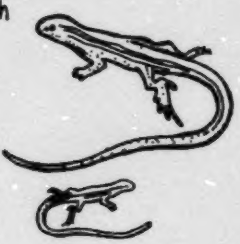




Some amphibians such as the gopher frog are quite musical. The frog produces a deep, roaring, snore-like mating call in springtime.



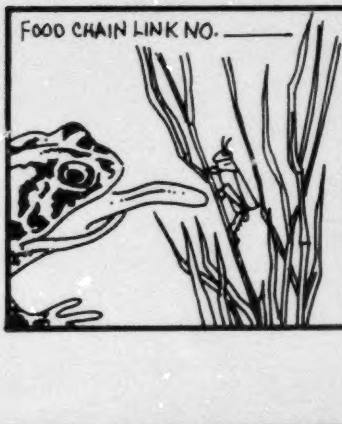
Reptiles on the other hand, produce eggs which hatch into young which are miniature though sometimes differently colored, replicas of the adults. Notice how this young six-lined racerunner is a smaller model of the adult.



The Role of Amphibians and Reptiles in the Prairie Ecosystem:

Amphibians and reptiles have a great deal to contribute to the ecosystem. As predators, amphibians and reptiles help control the population of insects and rodents. As prey, they serve as food for birds, and mammals as well as other amphibians and reptiles.

FOOD CHAIN LINK NO. ______



The American toad preys upon the red-legged grasshopper, Food energy in grasshopper is transferred to the toad.

Working with Prairie Amphibians/Reptiles:

Work Step #1: Using the word picture at the top of this page as a guide, name one thing some amphibians add to the prairie scene. Explain how amphibians exist in two forms. Do reptiles?

Work Step #2: On page 26 are descriptions of eight prairie amphibians and reptiles. One thing all of these animals have in common is the need for adequate shelter. The adults need shelter for themselves and for their eggs. And when the eggs hatch, the young also need shelter. There are many different types of shelter available in the prairie ecosystem. Sometimes rocks and clumps of grasses provide shelter, other times water and soil provide the only shelter. After reading the description of each animal, write on the blank lines all of the locations wherein each animal finds shelter for itself, eggs and young. If there is more than one line, it means the animal finds shelter in more than one place. For example, the adult blue racer finds shelter in three different places but only one place is shelter for its eggs.

Work Step 3: On page 27 are illustrations of the eight amphibians and reptiles. Using the clues provided, label each illustration.

Blue racer: This slender blue snake has a white chin and throat and is from 36-60" long. This snake usually hangs out under a rock but will climb a shrub or take to the water if being pursued or searching for food. The racer preys upon insects, amphibians, reptiles and small birds and mammals. In June and July, the racer lays its 19 to 25 white eggs under a rock. Adult. ______ ______ ______ eggs ______

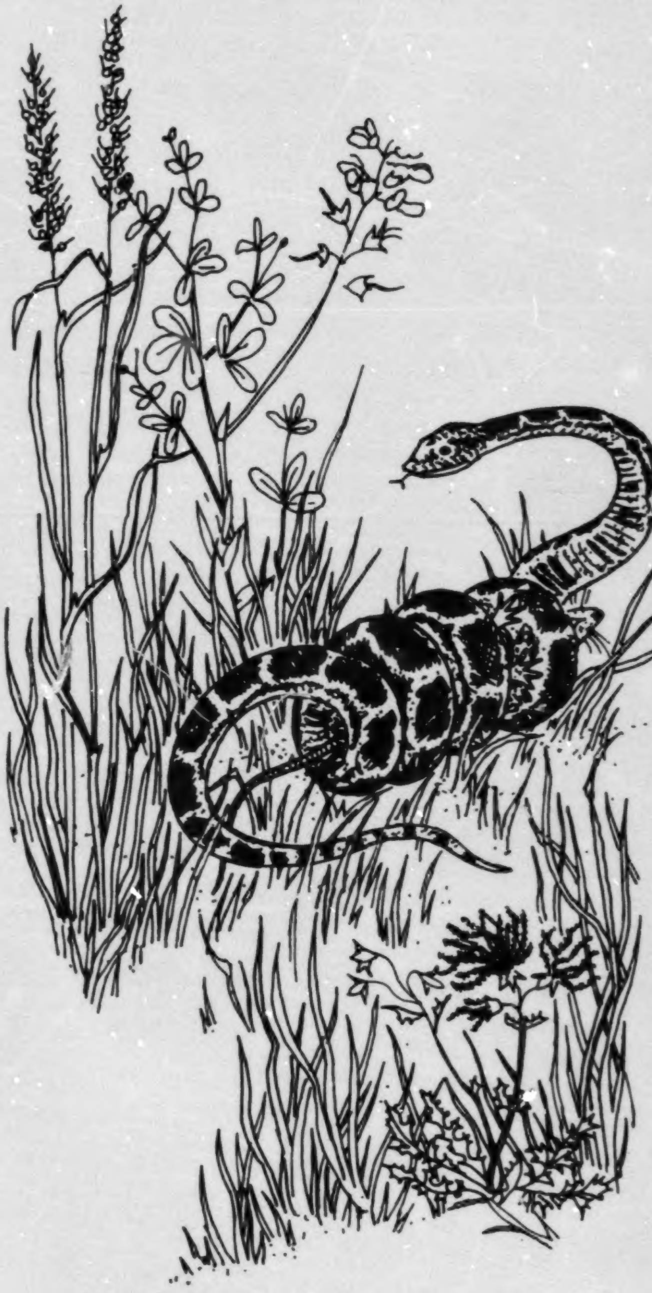
ornate box turtle: This dark brown, 4-5" long turtle is decorated with golden lines radiating outward from the middle of its shell. This turtle carries one of its shelters with it. If threatened, it pulls in its head and feet and closes its shell so tight the prying beak, claws or teeth of a predator cannot get through. During the spring of the year, the turtle crawls out of its burrow in the soil. By June and July, the female buries her clutch of eggs in the soil. The box turtle travels across the prairie floor in search of fungi, fruits, seeds and tiny animals. In the severe heat of midsummer, the turtle seeks refuge by burrowing into the soil. During fall , the turtle emerges again for several weeks, the young turtles hatch. But as the days turn colder, the turtle begins digging into the soil a short distance each day. By the time of the first freeze, the turtle has worked its way deep enough in the soil to avoid freezing. Adult: ______ ______ eggs ______

American toad: During the day, this 2-3½" brown to olive toad hides in the thick clumps of grass stems. At dusk, it ventures out to feed on insects and worms. The female lays several thousand eggs in long strings in the bottom of a prairie pond. In only a week's time, small, black tadpoles hatch. These tadpoles have gills and swim about like fish looking for tiny aquatic plants and animals for food. When they transform into adults, they lose their gills, breathe by lungs and live on land. Adult ______ eggs ______ tadpoles ______

western fox snake: This yellow-gray snake is marked by red-brown spots and grows to be 36-50" long. In search of small mammals and birds, the fox snake makes its way about the prairie floor. Occasionally, the fox snake rests hidden in a clump of grasses. Other times, the agile snake climbs a dead standing tree or stump at the edge of the prairie and finds shelter underneath the loose bark. The female snake lays her eggs in the soil beneath a rock and hatching occurs in late summer. Adult ______ ____________
eggs ________________

small-mouthed salamander: This 4½-7" salamander is named for its tiny mouth and head. Its skin is dark brown to black and marked by grayish-yellow patches. The adult salamander finds shelter in the soil beneath rocks. At night, it travels the prairie floor in search of earthworms, slugs and insects, sticking close always to the protective cover of the vegetation. During the spring the female finds a prairie pond or ditch and deposits a sticky mass containing 6 to 30 eggs onto the stem of an aquatic plant. The eggs hatch in a few days and the larvae stay in the water, often seeking shelter beneath rocks, until they have transformed into adults, usually by July. Adult: ______ ______ eggs ______ larvae ______

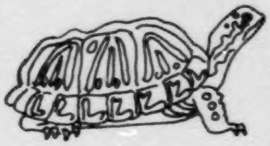
bull snake: This large (50-72") yellowish snake is marked by darkly colored blotches. The powerful bull snake travels about the prairie in search of small birds and mammals. It ambushes its prey from a hiding place like a clump of grasses or mammal burrow. The bull snake squeezes its prey to death. The bull snake is a beneficial animal because it helps control the population of rodents. Eggs of the bull snake are often laid beneath a rock. Adult ______ ______
eggs ______



gopher frog: The spring mating season is the only time this creme colored frog marked with black spots ventures above ground. During the winter, the gopher frog hibernates in the soil beneath a pond. During summer and fall, the frog lives by day inside a crayfish hole dug into the bank of a pond. At night, the frog darts out to capture crayfish and aquatic insects. The female frog lays 5,000 eggs in shallow water and occasionally attaches the egg mass to the stems of plants. The larvae swim in the water, finding refuge from time to time under decaying vegetation until they have transformed into frogs by July. Ad[illegible] ______ ______ eggs ______ larvae ______

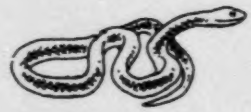
six-lined racerunner: This olive-gray to brown lizard has six lightly colored stripes running from its head to the base of its tail. The 6-9½" racerunner is a real sun-lover and is often seen during the day basking on a rock. On cool days, the lizard seeks shelter beneath a rock. The racerunner is a quick predator and has little problem snagging spiders. The eggs on the racerunner are sheltered in the soil until they hatch in July. Adult ______ Eggs ______ .

dark brown,
gold lines on shell



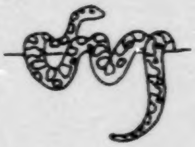
______

slender blue,
white chin and
throat



______

yellow-gray,
red brown
spots



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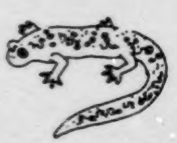
dark brown to
black, grayish
yellow patches



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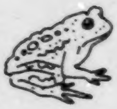
Prairie Amphibians and Reptiles

brown to olive,
2 to 3½"
long



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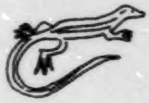
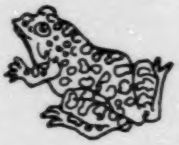
olive gray to
brown,
six stripes



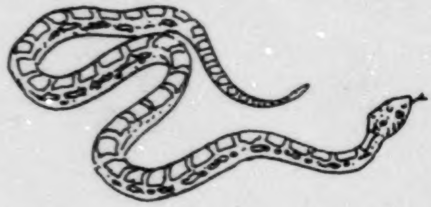
______

cream colored,
black spots



______

50-72",
yellowish, dark blotches



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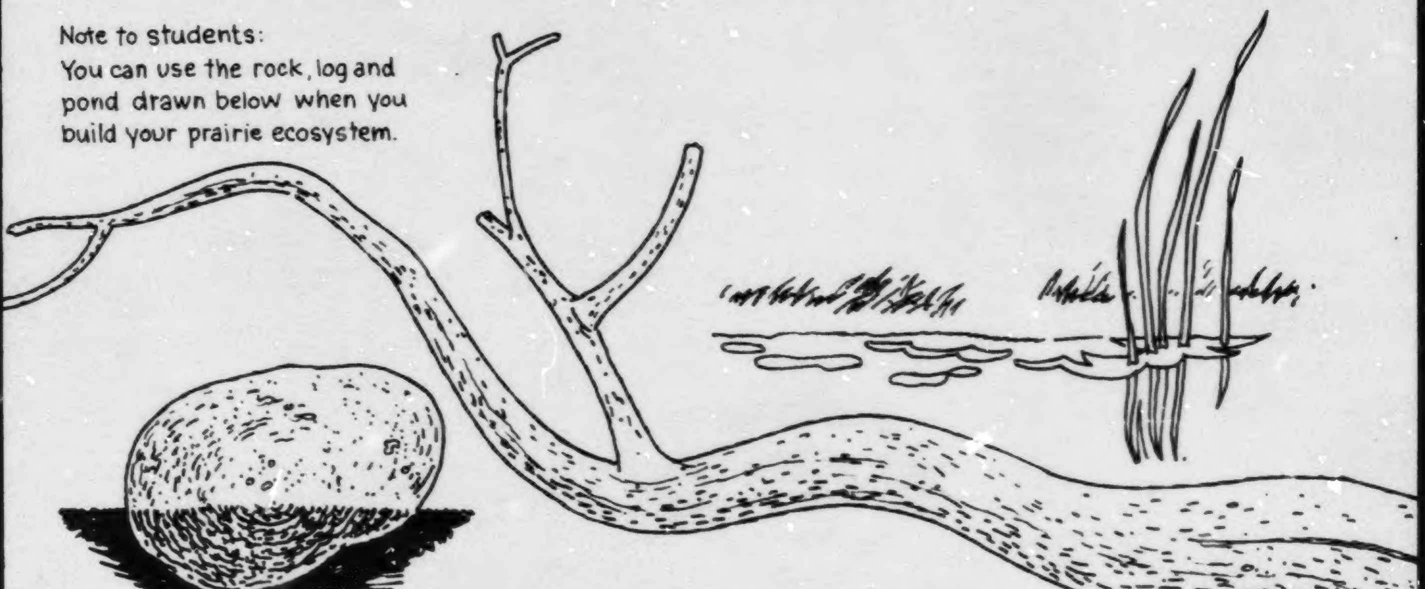
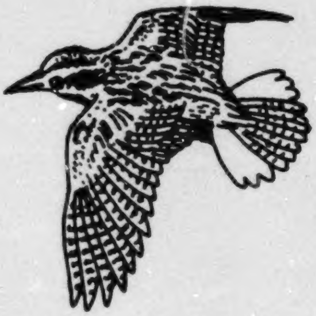
Note to students:
You can use the rock, log and
pond drawn below when you
build your prairie ecosystem.



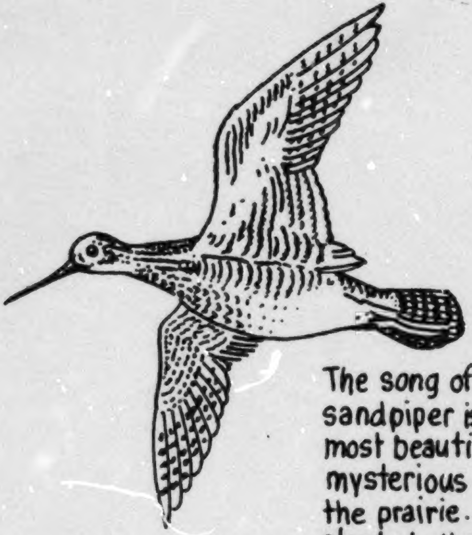
Prairie Birds

ACHIEVEMENT COUPON
STEP into the WILD

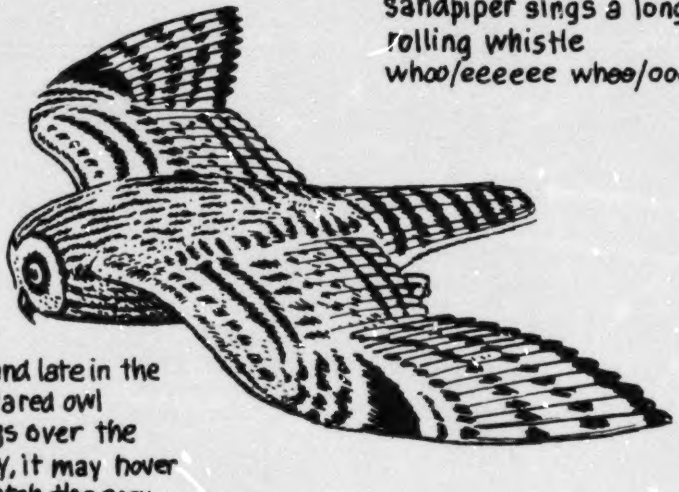
Birds add color, movement and beautiful sounds to the prairie.



The chunky brown meadowlark sports a brilliant yellow throat and vest crossed by a black V. When this bird flies, two broad patches of white can be seen on either side of the tail.



The song of the upland sandpiper is one of the most beautiful and mysterious sounds on the prairie. While circling slowly in the sky, the sandpiper sings a long rolling whistle whoo/eeeeee whee/ooooo



Early in the morning and late in the afternoon, the short-eared owl patrols on silent wings over the prairie. If it spots prey, it may hover and drop or it may snatch the prey from the ground and pass on without even checking its speed, so swift and skillful is its stroke.

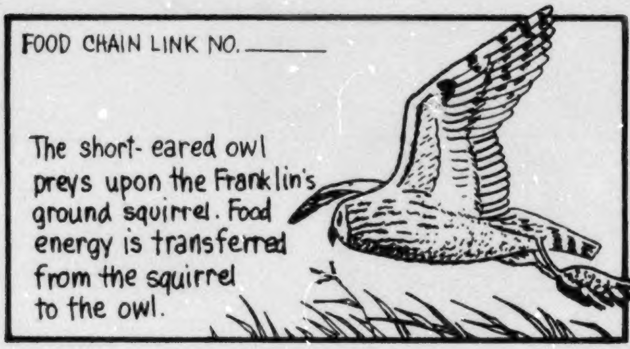
The Role of Birds in the Prairie Ecosystem:

In addition to contributing to the beauty of the prairie, birds help the ecosystem function smoothly. Birds that pick apart the fruits of plants help scatter the seeds that will someday grow as new plants. Birds that eat only plant parts are known as *herbivores*.

Other birds on the prairie eat both plant parts and animals. These birds, known as *omnivores*, are important because not only do they help scatter seeds but they also help control the population of insects.

Birds of the prairie that are equipped with sharp talons and/or beaks are usually *carnivores*, which means they only eat other animals.

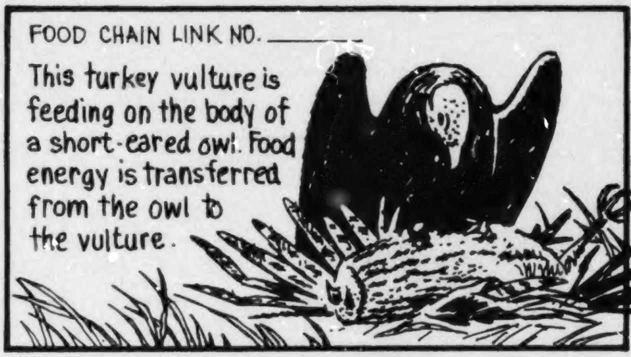
FOOD CHAIN LINK NO. ______



The short-eared owl preys upon the Franklin's ground squirrel. Food energy is transferred from the squirrel to the owl.

Birds not only take from the prairie food supply, they add to it. Smaller birds, like the meadowlark and dickcissel make their contribution when they are preyed upon by a larger bird or mammal. Larger birds, like the marsh hawk or short-eared owl, though they are near the top of the food chain, make their contribution when they die. At that time, their bodies serve as food for *scavengers* such as the turkey vulture. And eventually the parts of their bodies not eaten by scavengers decay and add nutrients to the prairie soil.

FOOD CHAIN LINK NO. ______



This turkey vulture is feeding on the body of a short-eared owl. Food energy is transferred from the owl to the vulture.

Working with Prairie Birds:

Work Step #1. Using the word picture at the top of page 28 as a guide, name three things, other than food, birds add to the prairie. Describe the color of the meadowlark, the movement of the short-eared owl, and the song of the upland sandpiper.

Work Step #2. Explain how birds help scatter seeds.

Work Step #3. Following is a description of eleven prairie birds. After each description are two blank lines. On the first line, write down what type of feeder each bird is. The choices are *herbivore, omnivore,* and *carnivore.* On the second line, write down the location of each bird's nest.

Work Step #4. On page 30, the eleven birds are drawn. It is your job to label each bird in the space provided. Be sure to use the clues written beside each drawing.

mourning dove: 12". This handsome dove is mostly gray to brown with white spots on its tail. It feeds on the seeds of plants and builds its nest in shrubs or trees at the edge of the prairie. __________ __________

upland sandpiper: 11½". This brown bird has a whitish belly streaked with black. When not flying or tending to its nest on the ground, it commonly perches on fenceposts. It feeds on insects, worms and plant seeds. __________ __________

Canada goose: 16-25". This goose has a black head and neck, with a white patch or "chinstrap" running into the side of the head. The Canada goose feeds on parts of plants, especially roots, and builds its nest on the ground near water. __________ __________

dickcissel: 6-7". The male dickcissel has a black bib on a yellow chest; the female is much paler in color and has just a touch of yellow on the chest. The dickcissel feeds on insects, plant parts and nests near or on the ground. __________ __________

killdeer: 9-11". This brown-backed, white-bellied bird is told by two black breast bands and its loud shrill call kill-dee, kill-dee. The killdeer feeds on insects, worms and snails and makes its nest in a small hollow on the ground. __________ __________

eastern meadowlark: The meadowlark feeds on insects and plant parts and builds its nest on the ground. (see word picture on page 27 for description) __________ __________

prairie chicken: 17-18". This bird is brown with dark bars. The male is told by orange air sacs on the side of the neck. During courtship, the male inflates those air sacs and then releases the air, causing a hollow oo-loo-woo sound known as "booming". The prairie chicken feeds on insects and plant parts and nests on the ground. __________ __________

loggerhead shrike: 9". This gray, black and white bird is told by its black mask. The loggerhead shrike preys only upon animals including insects, reptiles and amphibians, birds and small mammals. Lacking sharp talons to hold down its food, the shrike hangs the body of its pray on a thorn or fence barb so it can tear away at the flesh with its bill. The loggerhead shrike builds its nest in a shrub or small tree. __________ __________

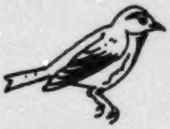
turkey vulture: 26-32". This black bird soars on wings that spread 6 feet. At close range, one can see the turkey-like red head on the adult vulture. The vulture is the clean-up bird of the prairie, feeding upon already dead animals. The vulture nests on the ground. __________ __________

short-eared owl: 13-17". This streaked brown owl is named for the two short tufts of feathers located on its forehead. It preys upon insects, amphibians/reptiles, birds and small mammals and nests on the ground. __________ __________

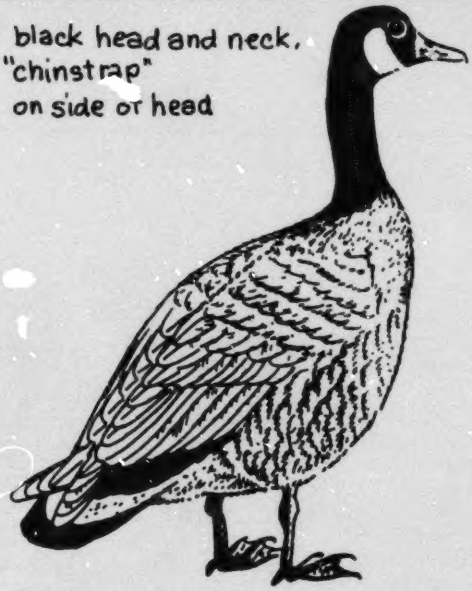
marsh hawk: 17½-24". The female marsh hawk is streaked brown; the male, gray; but the best clue for identifying either sex is white rump. This slim hawk hunts low over the ground for insects, reptiles/amphibians, birds and small mammals. It nests on the ground. __________ __________

Prairie Birds

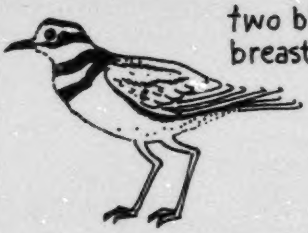
black bib on yellow chest



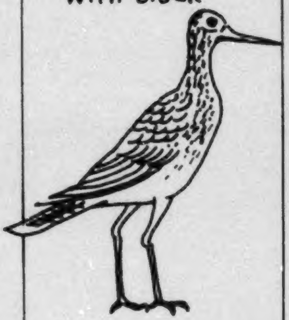
black head and neck, "chinstrap" on side or head



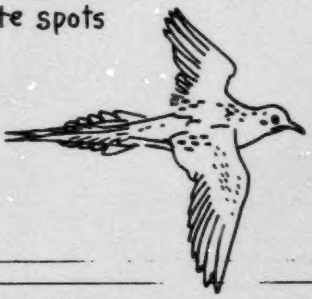
two black breast bands



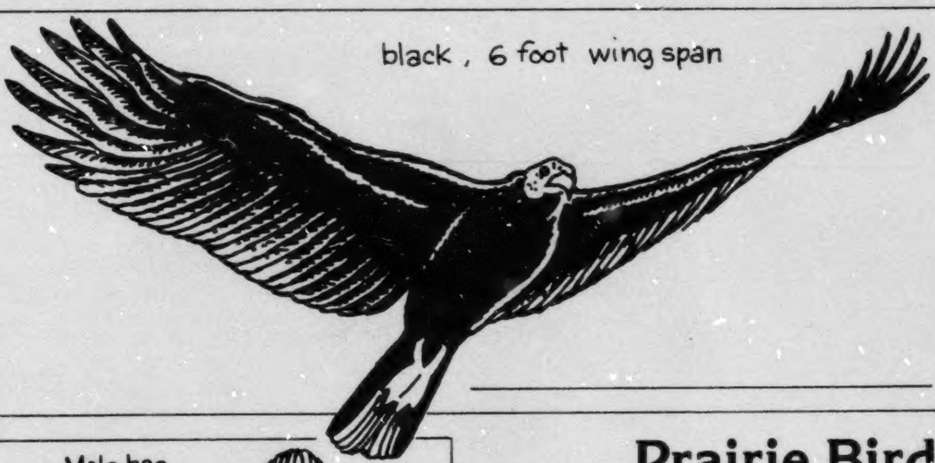
brown, whitish belly streaked with black



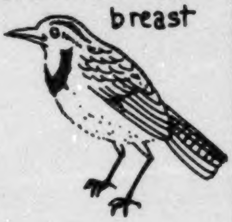
brown, pointed tail with white spots



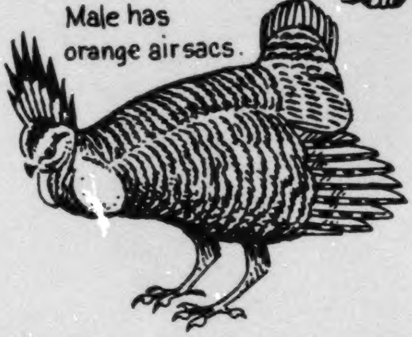
black, 6 foot wing span



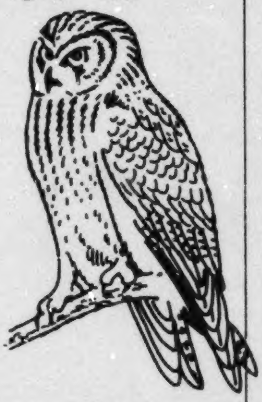
brown, yellow throat and breast, black V crosses breast



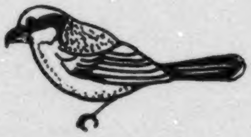
Male has orange air sacs.



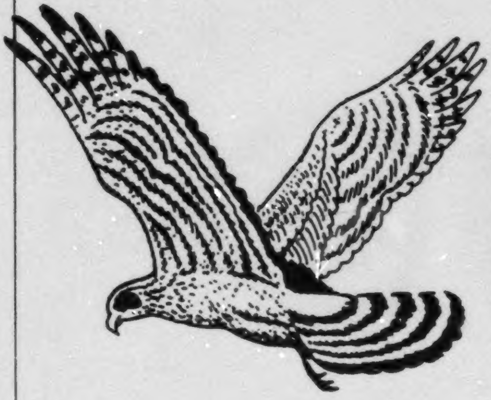
streaked brown, 13-17" tall



gray, black and white, black mask



streaked brown or gray, white rump

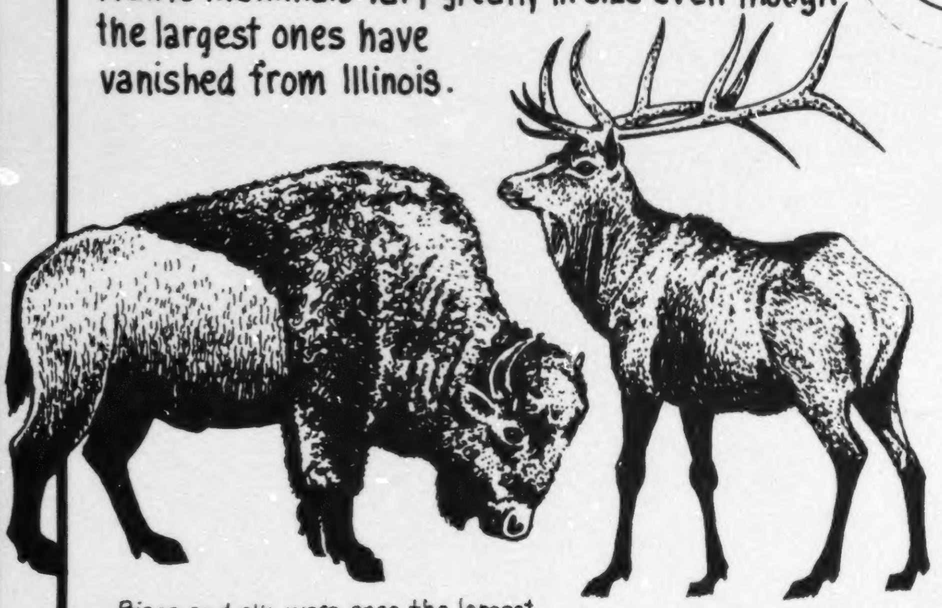


Prairie Mammals

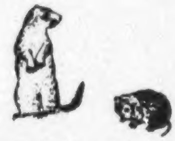
ACHIEVEMENT COUPON

STEP into the WILD

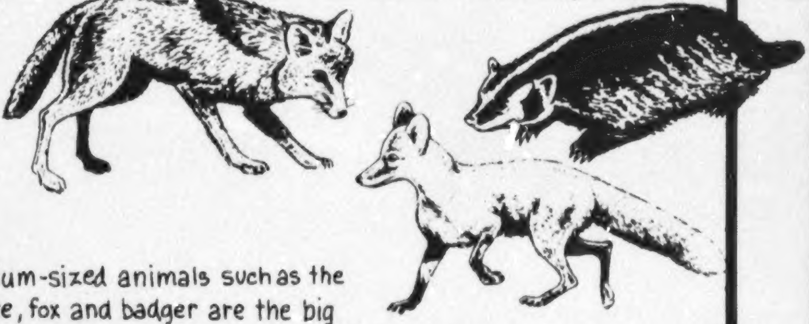
Prairie mammals vary greatly in size even though the largest ones have vanished from Illinois.



Bison and elk were once the largest mammals on the Illinois prairie. During settlement of Illinois, however, huge numbers of bison and elk were killed by people and the prairie was plowed up and used as farmland and cities. Without a safe habitat to live in, the mighty bison and graceful elk vanished from Illinois.



Small animals like the prairie vole and Franklin's ground squirrel are the most numerous on the prairie. Regardless of size, each mammal species has its own special place to live and role to play in the prairie ecosystem. That special place and role is the species niche in the ecosystem.



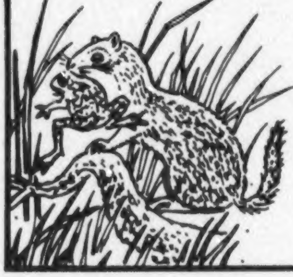
Medium-sized animals such as the coyote, fox and badger are the big mammals on the prairie that remains in Illinois.

The Role of Mammals in the Prairie Ecosystem:

Mammals are vital to the flow of food energy in the prairie ecosystem. Some mammals like the badger, coyote and red fox are most important as predators because they keep insect and rodent populations under control. Other mammals like the cottontail rabbit and prairie vole are most important as sources of food for other members of the ecosystem. Some mammals such as the little brown bat and Franklin's ground squirrel are important as both predators and prey.

You learned in the word picture at the top of this page the meaning of the word "niche". The niche of an animal is very important because it guarantees each species a place to live and food to eat. With each species having its own niche, there is less competition between species for space and food. If an animal loses its niche, it cannot survive.

FOOD CHAIN LINK NO. ________



The Franklin's ground squirrel captures an American toad. Food energy is transferred from the toad to the ground squirrel.

The word picture at the top of this page explains what happened to bison and elk once they lost their niches in Illinois.

To define the niche of an animal, one must consider where, when and how it travels, what it eats and what eats it, when and where its young are born and what defenses it has against its predators. Although the niches of some species may be somewhat similar, they are never exactly the same. This gives each species its own special chance for survival. Let's look at the niches of the badger and red fox by studying the word pictures below.

Working with Prairie Mammals

Work Step #1. Explain why some mammals are most important as sources of food for other animals? Explain why some are most important as predators. Name two mammals that are important both as food sources and predators.

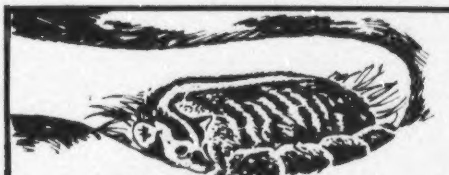
Work Step #2. On the blank lines that follow, describe the niche of the badger.

Where live ____________ Where nest ____________
When active ____________ How catch food ____________
food ____________ Predators ____________

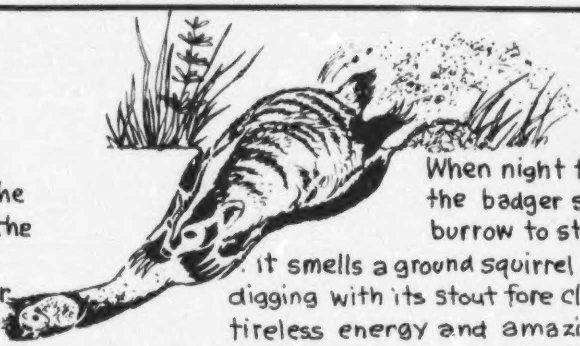
Now describe the niche of the red fox. Where rest during day ____________
when active ____________
where travel ____________
how catch food ____________ food ____________
where den ____________
how many litters ____________ defense ____________
predators ____________

How does the niche of the badger compare to the niche of the red fox? Are they active at the same time? ____________ Do they stay in the same place on the prairie during the day? ____________ Do they catch their food in the same way? ____________ Do you think the fox could survive if it had to dig for its food as the badger does? ____________ Do you think the badger could survive if it had to stalk and pounce on its prey as the fox does? ____________

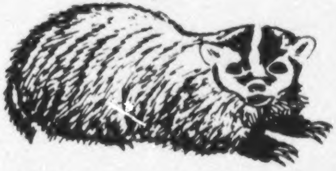
Work Step #3. On page 33 are descriptions for 10 mammals. Following four of the descriptions are



Short bodied and short legged, the badger lives in burrows beneath the ground. During spring it uses its burrow as a nest chamber to bear and raise its young.

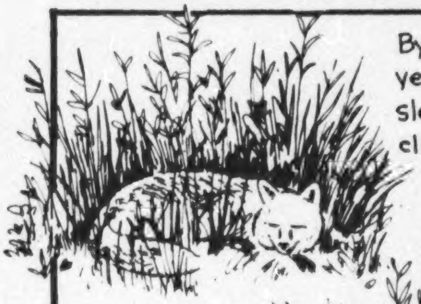


When night falls on the prairie, the badger surfaces from its burrow to stalk its prey. it smells a ground squirrel or mouse, it begins digging with its stout fore claws. Because of its tireless energy and amazing speed, it can catch most of its prey before they can escape their burrows.

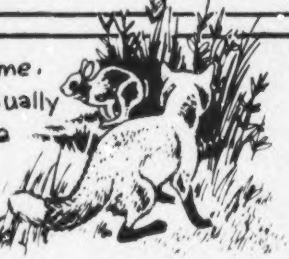


Badger

With its strength and sharp teeth and claws, the badger defends itself against all predators, except man.

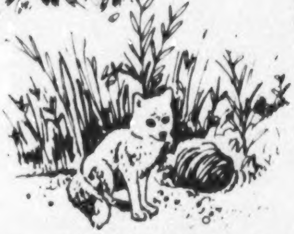


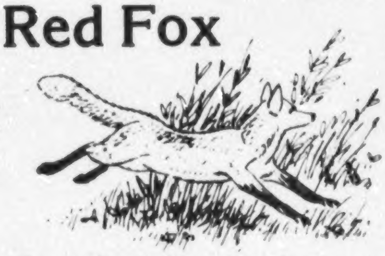
By day this handsome, yellowish-red fox usually sleeps concealed in a clump of grasses.



During the nighttime hours, the fox travels the prairie floor to stalk its prey, usually rabbits and mice but also birds and insects. Once prey is spotted, the fox takes slow, deliberate steps or crouches and wiggles toward it. It then rushes its victim and kills it with a bite from its powerful jaws. In summertime, the fox also feeds on the berries of plants.

Red Fox





4-9 young foxes, called "kits" are born in March and raised in an underground den.

The fox defends itself against enemies with its quick speed and cunning. It is taken by only a few predators, including man.

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blank lines referring to part of the animals niche. From what you have read about that animal, fill in the blank lines.

Work Step #4. On page 34 are illustrations of the 10 mammals described. Using the clues written beside each illustration, label the mammals.

little brown bat: The main body of this brown bat is covered with fur but the tail membrane, ears and wings are nearly free of hair. During winter, this bat hibernates in caves but come spring and summer, it takes off for a variety of habitats, including prairies. The edge of a prairie is where one might expect to find a little brown bat roosting beneath the loose bark of a tree. When the sun goes down, the bat takes wing across the open prairie to snag insects. The little brown, like all bats, guides itself by means of a sonar system. As the bat flies, it squeaks out ultrasonic sounds which cannot be heard by people. The bat hears the echoes those sounds make as they hit objects, such as a tree or bush. The bat knows then to steer clear of the tree or bush. The little brown makes no nest; instead, the young bats, born in spring, cling to the breast of the female who hangs by her hind feet in any place that affords shelter. And when the female leaves to hunt for food, the young bats hang by themselves. The little brown defends itself against predators by flying skillfully and swiftly. Sometimes, however, a hawk, owl, or weasel, will prove itself master over this bat.

Where summer roost ____________________
When active ____________________
Food ____________________
How guide itself ____________________
Where nest ____________________
Defense ____________________
Predators ____________________

Franklin's ground squirrel: Standing 8½-9½" tall, this ground squirrel is mostly gray in color with black specks on its back. In a prairie ecosystem, the underground burrow of the Franklin's ground squirrel would most probably be at the edge, where the prairie gives way to larger brush and eventually forest. The Franklin's spends 90% of its time in this burrow, resting at night through the warm months and hibernating during the winter. During the bright daylight hours, it quietly makes its way across the prairie feeding on grasses, and wildflowers. But it can also take animal food, including toads, frogs, insects, mice, bird eggs and even young rabbits. Four to five young ground squirrels are born about mid-May and raised in a nest chamber of the burrow. Though the Franklin protects itself by sticking close to its burrow and heavy cover, it is preyed upon by many predators including hawks and badgers.

Where burrow ____________ Active ____________
Food ____________ Location of Nest ____________
Defense ____________________
Predators ____________________

prairie vole: The upper parts of this 4¾"-6" vole are mostly brownish gray and the under parts are washed with yellow or rust. Winter and summer, night and day, the prairie vole tunnels out surface runways that have been known to cover 160 feet. While traveling through these runways, usually either right at the surface of the prairie, or a few inches beneath, the vole finds bits of grasses, seeds and roots for food. These surface runways lead to deeper, underground burrows wherein the vole has a nest and storage chambers of food. Because the vole can do little to defend itself it rarely makes it past one year without being snatched by a hawk, owl or fox. Since prairie voles are so heavily preyed upon, they must reproduce quickly and in large numbers. To achieve this high rate of reproduction, the female vole produces litters of 3-6 young, throughout the year except during the coldest months. And a young female vole is ready to start a new family at the young age of 3 to 4 weeks.

Where travel ____________ Food ____________
Nest located ____________________
Defense ____________________
Predators ________ Why quick reproduction important
____

plains pocket gopher: This 9½ to 12¾", slate gray to black gopher lives almost continuously in burrows which run for several hundred feet just beneath the prairie floor. In these burrows, there are storage chambers for food, a main nest chamber and many side tunnels that lead to the roots of a plant relished by the gopher. Only rarely does the gopher surface from its burrow to search for stems and leaves to eat. The gopher has adapted certain physical traits to help it move about in its dark, narrow burrows. It has a highly sensitive tail which acts like a guide when it backs down a tunnel. Its loose skin and velvety soft fur allow it to turn around in a tight space. Its lips can close behind its front teeth, thus keeping dirt out of its mouth as it is gouging out soil or cutting roots. Maybe the most important part of its body, however, are its long, curved claws which are used to dig and push dirt from the burrows. The gopher protects itself by keeping the entrance to its burrow solidly blocked with plugs of dirt at nearly all times. For badgers and some snakes, however, this protective door is no obstacle.

Burrows located __________ Nest located __________
Where tunnel ______ How adapted to live underground
____
____
Defense ____________ Predators ____________

coyote: From its muzzle to the tip of its bushy tail, the coyote is 44-54" long. The fur along the coyote's back is grizzled gray but its breast and belly fur is whitish or cream-colored. By night, the coyote may travel many miles in search of prey, usually rabbits and mice but also birds, insects, herbs and fruits and dead animals.

striped skunk: This black and white, short-legged animal is 22-26" long. Usually at night, the skunk digs and roots into the soil where it snags mostly insects, but also mice, moles, shrews and young rabbits. The skunk fends off most enemies by shooting out a terrible smelling stream of fluid or "musk" from glands located on each side of its anus.

eastern cottontail: From its brown nose to its powder puff tail, the cottontail rabbit is 15½" to 18" long. The upper part of its body are buff to rusty brown and the under parts, except for the buff-colored throat, are white. The cottontail loves to nibble on the juicy stems of wildflowers.

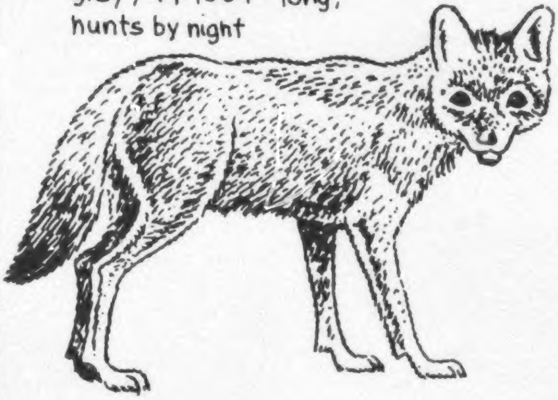
least shrew: Motivated by an insatiable appetite, this 3" brown shrew hunts both day and night for insects, worms and the dead bodies of small animals.

red fox: See description in word picture on page 31.

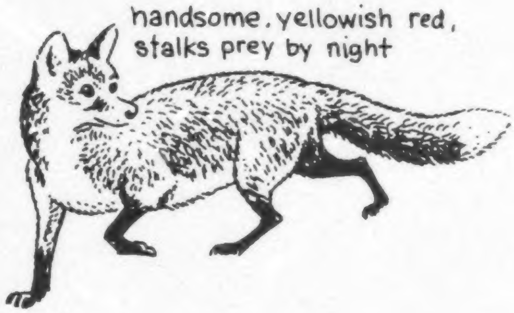
badger: See description in word picture on page 31.

Prairie Mammals

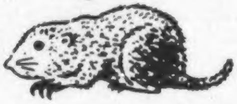
gray, 44 to 54" long,
hunts by night



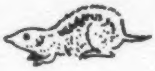
handsome, yellowish red,
stalks prey by night



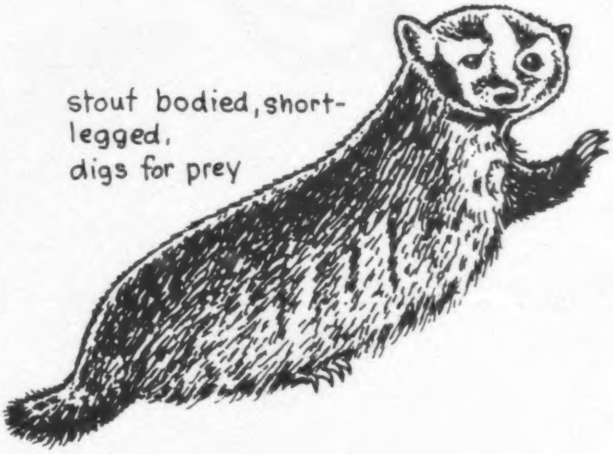
slate gray to black,
adapted to live
underground



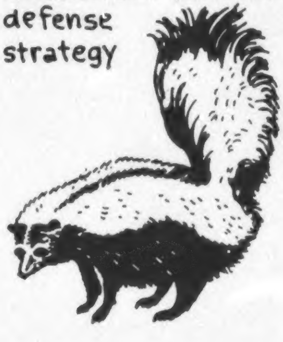
3" long
brown,
travels in
tiny burrows



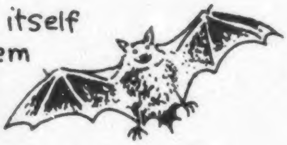
stout bodied, short-
legged,
digs for prey



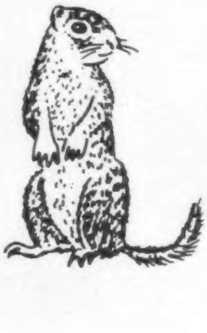
black and white,
unusual and powerful
defense
strategy



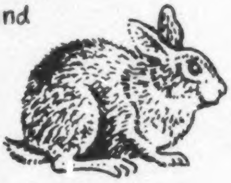
brown, guides itself
by sonar system



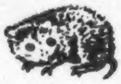
gray with black specks,
hunts by day



buff to rusty brown,
feeds morning and
late afternoon



brownish gray, travels
long
surface
runways



PRAIRIE SLEUTHWORK

To complete this exercise, you must become a spy of the prairie world. Your mission will take you to four parts of the prairie: THE PRAIRIE FLOOR, THE FORBS, THE GRASSES, and THE EDGE OF THE PRAIRIE. As you conduct your investigation, you will have to use four of your senses to detect important plant and animal life. And you will have to use your reasoning as well as your imagination to discover the many secrets of the prairie. Good luck!

ACHIEVEMENT COUPON
STEP into the WILD

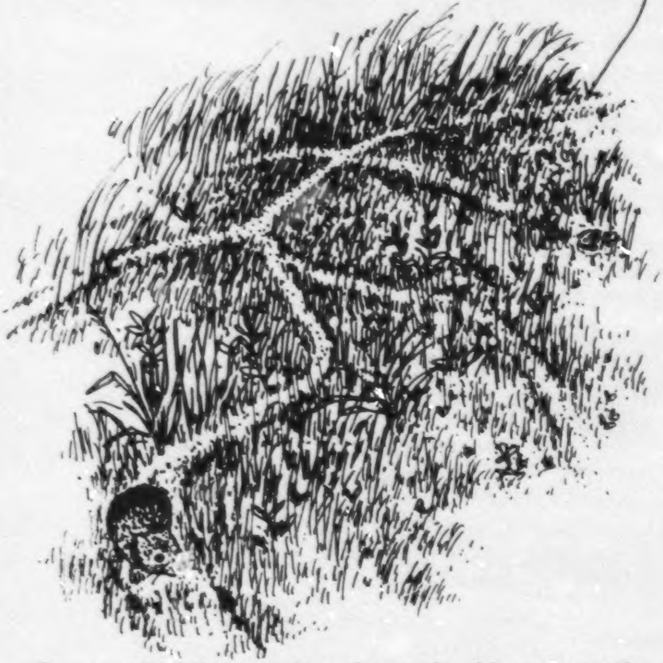
Station 1: The Prairie Floor

Briefing: It is your mission at Station 1 to search the prairie floor for signs of animal and plant life.

Strategy A:
The prairie floor includes everything on the surface of the soil. The prairie floor is what you and other animals walk on when traveling across the prairie. As your first task, search the prairie floor for a surface runway similar to the one drawn below. If you find a runway, how big around and how long is it? _______

____

The prairie vole cuts out surface runways by clipping the grass and other vegetation very close to the ground. The vole travels these runways to reach underground tunnels. By clipping the stems of plants the vole stimulates new and better plant growth.



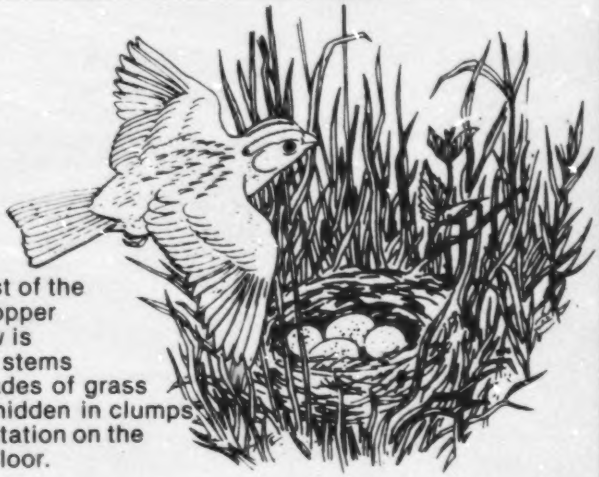
Can you find the opening of an animal burrow on the prairie floor ______________? If so, how big is the opening ______________. Is the burrow you found big enough for the badger ______________? least shrew _________? plains pocket gopher _________? Franklin's ground squirrel ______________? digger wasp _____________? or mound ant ____________? (See page 15 for clues about the size of these animals and their burrows.)

Strategy B:
Explore the prairie floor for fungi. Can you find any fungi: such as puffball, earth star, or common mushroom? (See page 16 for drawings of these fungi.) Draw any fungi you find in this box.

Fungi Drawing

Strategy C:
Canvas the prairie floor for a nest. Try to find the nest of a bird or a mammal. Remember: *A good prairie sleuth does not bother the nest of any animal.* The nest you find may resemble that of the grasshopper sparrow (see drawing below). Draw any nest you find in the space provided.

Nest Drawing



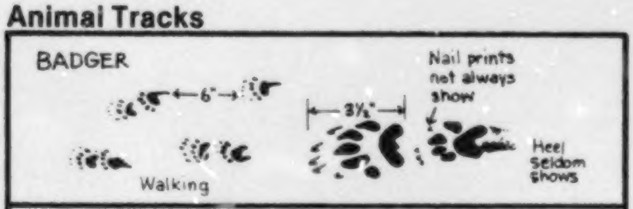
The nest of the grasshopper sparrow is built of stems and blades of grass and is hidden in clumps of vegetation on the prairie floor.

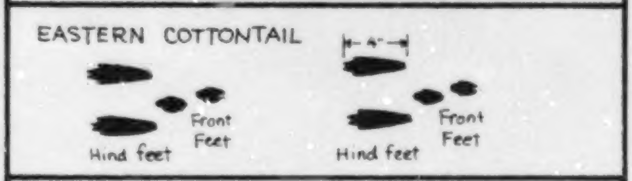
Strategy D:
The prairie floor is a good place to find reptiles and amphibians. See page 27 for clues about prairie amphibians and reptiles. Name and/or describe any you see. ______________________________

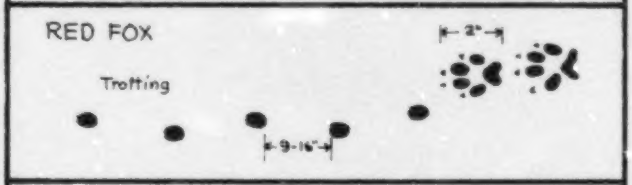
____

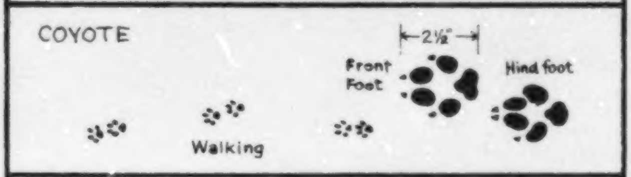
____

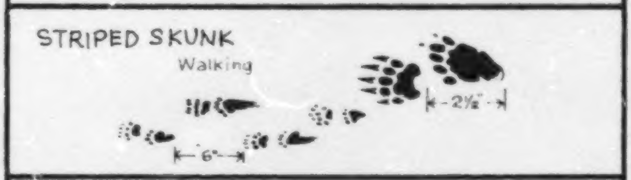
Animal Tracks

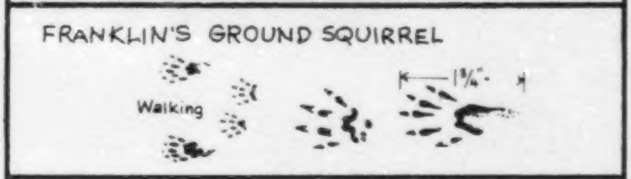

BADGER
6"
3½"
Nail prints not always show
Heel seldom shows
Walking

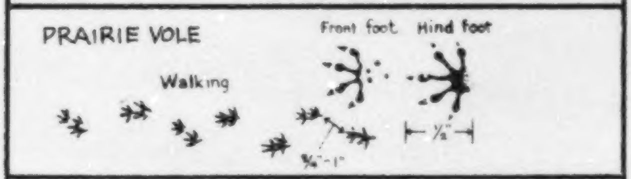

EASTERN COTTONTAIL
4"
Front Feet
Hind feet
Front Feet
Hind feet

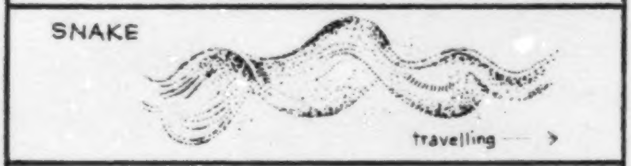

RED FOX
2"
Trotting
9-16"

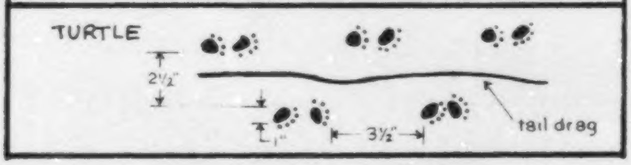

COYOTE
2½"
Front Foot
Hind foot
Walking

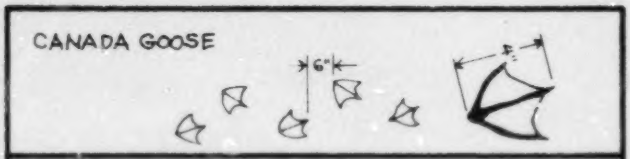

STRIPED SKUNK
Walking
2½"
6"

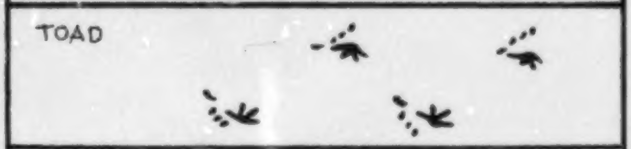

FRANKLIN'S GROUND SQUIRREL
1¾"
Walking

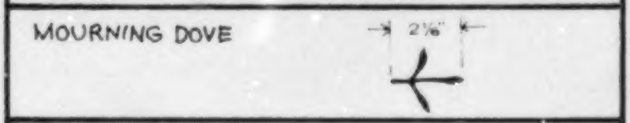

PRAIRIE VOLE
Front foot
Hind foot
Walking
½"
¾"-1"

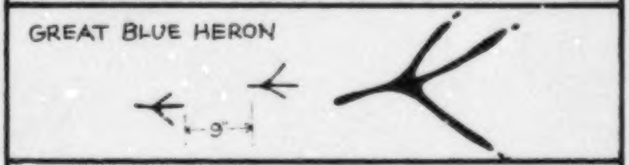

SNAKE
travelling →

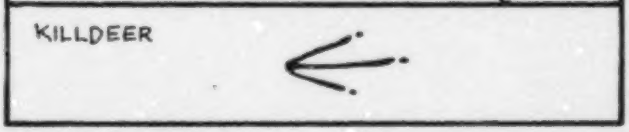

TURTLE
2½"
1"
3½"
tail drag


CANADA GOOSE
6"




MOURNING DOVE
2⅛"


GREAT BLUE HERON
9"



Strategy E:
Now it is time to search the prairie floor very closely for animal tracks. Try to find places along the prairie floor where there is bare soil or mud. Although you may be able to find the tracks of a bird, a reptile or an amphibian, especially near water, your best bet is to look for mammal tracks. Do you see any of the tracks drawn on this page? Draw any tracks you find in the box below.

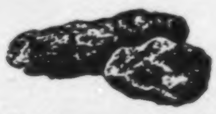
Drawing of tracks

Strategy F:
Before you leave Station 1, make an inventory of all items you can find on the prairie floor. Have you found any bones ______________? teeth ______________? feathers ______________? animal droppings ______________? animal mounds______________? eggs______________? owl pellets ______________? fur ______________? List all items you have found.______________________________

____

____

____


Owl pellets

Owl pellets include the indigestible parts of animals owls eat. Since an owl cannot digest these wads of hair, teeth and bones, they regurgitate them.

Station 2. The Forbs

Briefing:

Station 2 includes the non-grass plants of the prairie, known as forbs or wildflowers. It is your mission at Station 2 to carefully examine these forbs and the insects that live in close association with them.

Strategy:

A. Search the prairie for forbs! How many do you see __________ ? If the forbs you have found are in bloom, list the different colors you see on the flowers. ____ .

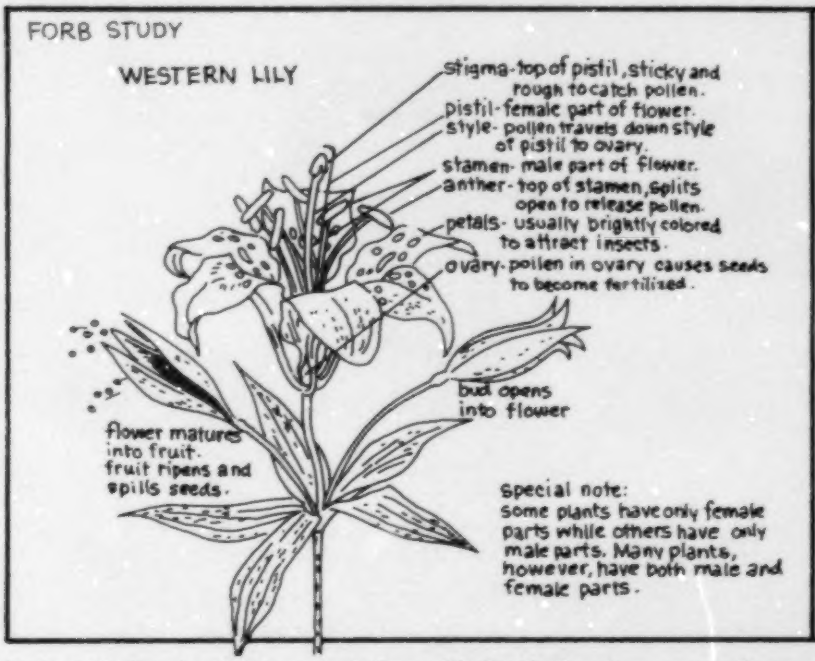
B. Select one forb for special study. Compare your forb to the western lily drawn below. Though your forb may differ in some ways from this lily, you can use it as a guide as you answer the following questions.

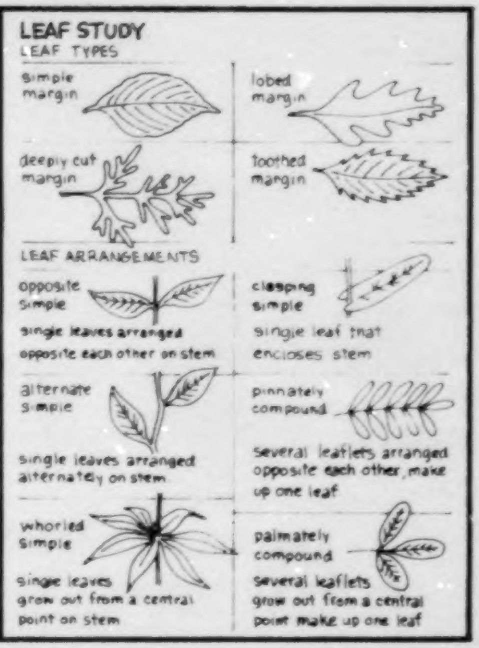
How tall is the forb you have found ______________ ?
What colors can you see on the forb ______________ ?
Does your forb have a flower(s)? If so, how many ____ ?
Describe the flower ______________________ .
Smell the flower and describe the scent ___________ .
Gently rub your finger along the stem of your forb. Describe the surface of the stem ______________ .
Does your forb have leaves ______________________ ?

Using the *leaf study* drawing below as a guide, describe what type of leaf your forb has ___________ .
How are the leaves arranged on your forb ____________ ?
Does your forb have any buds ____________________ ?
Does your forb have any seeds or fruits? If so, draw and describe them in the box below.

C. If your wildflower has a flower, you should study it closely. Does your flower have petals ______________ ?
a pistil _____________ ? a style ______________ ?
a stamen _____________ ? an anther ______________ ?
Draw and label your plant here:

Your forb drawing	Draw seed/fruit here


FORB STUDY
WESTERN LILY
stigma-top of pistil, sticky and rough to catch pollen.
pistil-female part of flower.
style- pollen travels down style of pistil to ovary.
stamen- male part of flower.
anther- top of stamen, splits open to release pollen.
petals- usually brightly colored to attract insects.
ovary- pollen in ovary causes seeds to become fertilized.
bud opens into flower
flower matures into fruit. fruit ripens and spills seeds.
special note: some plants have only female parts while others have only male parts. Many plants, however, have both male and female parts.


LEAF STUDY
LEAF TYPES
simple margin
lobed margin
deeply cut margin
toothed margin
LEAF ARRANGEMENTS
opposite simple
single leaves arranged opposite each other on stem
clasping simple
single leaf that encloses stem
alternate simple
single leaves arranged alternately on stem
pinnately compound
several leaflets arranged opposite each other, make up one leaf
whorled simple
single leaves grow out from a central point on stem
palmately compound
several leaflets grow out from a central point make up one leaf

D. Insects live in close association with the forbs at Station 2. Insects feed on the pollen and nectar produced by forbs and forbs depend upon insects to carry pollen from the male part of flowers to the female part of other flowers, a process known as *pollination*. The result is that forbs depend upon insects for survival and vice versa. The drawing of the western lily shows how pollen moves about the male and female parts of a flower. Study that drawing carefully and then complete the paragraph below. To do so, you will have to pretend you are watching a bumble bee in the prairie.

You spy a bumble bee flying about the prairie. The bee spots a western lily. The brightly colored _______ of the lily attract it and it lands right in the middle of one of its flowers. Standing on a ___________ , which is the top of the ____________________ , or the male part of the flower, it begins to feed upon pollen. Meanwhile, the body hairs of the bee are rubbing pollen off of another anther. Before the bee leaves the lily it uses its hind leg to comb the pollen from its body hairs onto one small area on its leg that is equipped with a ring of hairs to catch and hold the pollen. In this "pollen basket", it will carry the pollen from this lily to another lily located just a few feet from here. It takes just a few seconds for the bee to fly to this second lily and it touches down right on the ___________ , which is the sticky and rough top of the ___________ , the female part of the flower. Some of the pollen in the pollen basket rubs onto the stigma and begins to travel down the ________________ of the pistil to the _________ . For many days after the bee has left this flower, the pollen it brought it will be at work in the flower's ovary. The pollen will cause the seeds to become fertilized and they will grow and ripen into mature seeds.

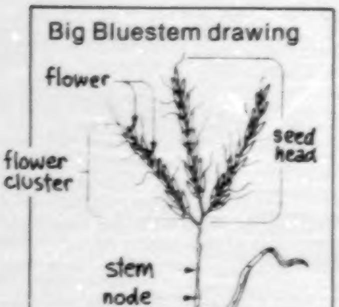
Station 3: The Grasses

Briefing: It is your mission at Station 3 to examine the grasses of the prairie and to detect the presence of birds.

Strategy A:
You should begin your work at Station 3 by locating as many grass plants as you can. How many different types or species can you find? ______________. Do different grass species differ in height __________? color ______________? shape ______________?

Strategy B:
Select one grass plant for special study: Compare the grass you have found to the drawing of big bluestem below. Though the grass you have chosen to study may be different in some ways from big bluestem, you can use the drawing as a guide to help you answer the following questions about your grass plant. How tall is your plant __________? What colors do you see on your plant __________? Rub your finger up and down the stem. Does it feel rough or smooth __________? Can you identify the seed head of your plant_______? Pull the seed head toward you and smell it. If there is a scent, describe it ______________________________. Can you identify the flower cluster on your plant____? How about the individual flowers _______? Does your plant have a sheath _______? a leaf blade _______? a node _________ Is there a shoot growing up from the roots of your plant __________?

Describe and draw your grass in the box provided.


Big Bluestem drawing

Big bluestem puts two-thirds of its growth (roots) underground. Fire may destroy its stem, leaves and seed head, but the soil protects its roots. Once the fire has passed, the large root system sends up new shoots.

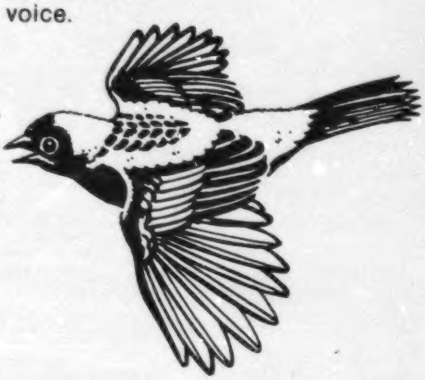
Your grass drawing

Strategy C:
Station 3 is a good place to listen and look for birds. Describe any birds you see or hear. ____.

Perhaps you will be lucky enough to see or hear a bobolink. If not, pretend you are a bobolink flying across the prairie by singing its bubbling song. (See clues below)

To imitate the song of the bobolink, sing the words in a loud, quick and high-pitched voice.

"Bob-o'-link,
bob-o'-link,
Spink, spank,
spink"*



Strategy D:
Go to the middle of the prairie and stand still. Close your eyes and concentrate upon listening. If the wind is blowing, you should be able to hear the grasses moving with the wind. ______________. If so, can you describe the sound __________________________? If the wind is not blowing, close your eyes once again and try to imagine what it would sound like if a strong and steady wind was sweeping across the prairie where you are standing. Can you imagine what the blowing grasses would sound like ______________? Have you ever heard a sound like that before ______? If so, where __________________? A strong prairie wind is necessary for the survival of grasses. Unlike the forbs, grasses do not have showy flowers and/or nectar to attract insect pollinators. Therefore, grasses are dependent upon the wind to carry their pollen from one plant to another. It is also the prairie wind that carries the fruits and seeds of grasses to new locations in the prairie.

Strategy E:
Now it is time to use your imagination one last time before you leave Station 3. While still standing in the middle of the prairie, imagine a wave of fire crossing across the prairie and engulfing all of the vegetation. What do you think that would sound like _________? Describe how you imagine it would look while the prairie was burning______________________________, and after the fire was gone ______________________. Do you think fire is good or bad for a prairie _________? At first thought, it may seem that a fire would be harmful to a prairie; but in truth, fire is a friend to the prairie. Fire burns off the dead grasses and forbs, thereby clearing the prairie floor for new plant growth. Fire also prevents the growth of trees on the prairie, thereby allowing the prairie to stay a grassland. Study the drawing of the big bluestem and explain how prairie plants survive fire. ____.

Where do you think animals such as the Franklin's ground squirrel or badger go to escape fire _______?

---

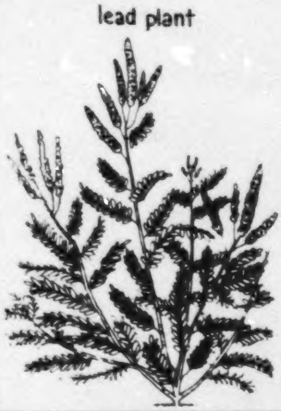
*from the poem, "Robert of Lincoln" by William Cullen Bryant

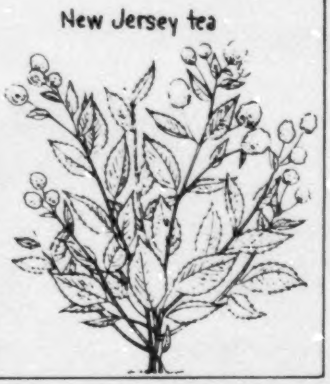
Station 4: The Prairie Edge

Briefing: The edge of the prairie includes the shrubs and trees that border the prairie. It is your mission at Station 4 to investigate the shrubs and trees and to compare the edge of the prairie with the middle of the prairie.

Strategy A:
Start your work by standing in the middle of the prairie. What types of plants surround you?
grasses ______________? forbs ______________?
shrubs ______________? trees ______________?
Look straight up toward the sun. Can you see anything blocking the flow of sunlight from the sun to the ground ________? Now begin walking toward the edge of the prairie. Stop as soon as you arrive at the edge. What types of vegetation do you see? grasses _____? forbs _____? shrubs _____? trees _____? Describe how the vegetation has changed from the middle of the prairie to the edge of the prairie _______
____
____.

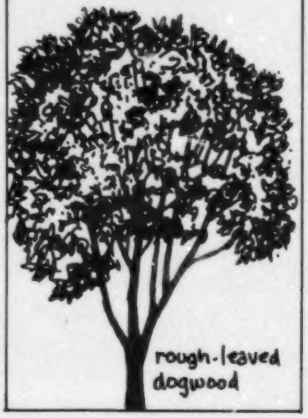
Strategy B:
Do you see any shrubs such as lead plant or New Jersey tea at the edge? ____? If so, draw your shrubs in the box provided.





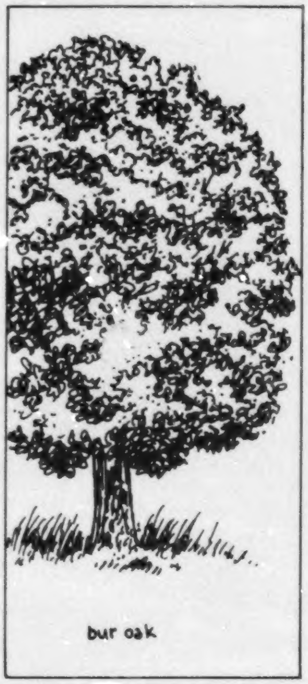
drawing of your shrub

Strategy C:
Now walk farther into the edge. Do you see any small trees such as roughed-leaved dogwood _____? If so, how tall is the tree you have found __________? Draw your tree in the box provided.



drawing of your tree

Strategy D:
Now walk still farther into the edge. Do you see any large trees such as bur oak? _______. If so, how tall is the tree you have found _________? Examine the bark of the tree by running your fingers up and down a section of it. Describe how the bark feels ___________. Does it feel differently from the forb stem you touched at Station 2_________? the grass stem at Station 3 __? Draw the tree you have found in the box provided.



drawing of your tree

Strategy E:
Stand beside a tree at the edge of the prairie and look up. Is anything blocking the flow of light from the sun to the ground at your feet? If so, name the things that are blocking the sunlight ____________________.
Is there more or less sunlight at the edge of the prairie

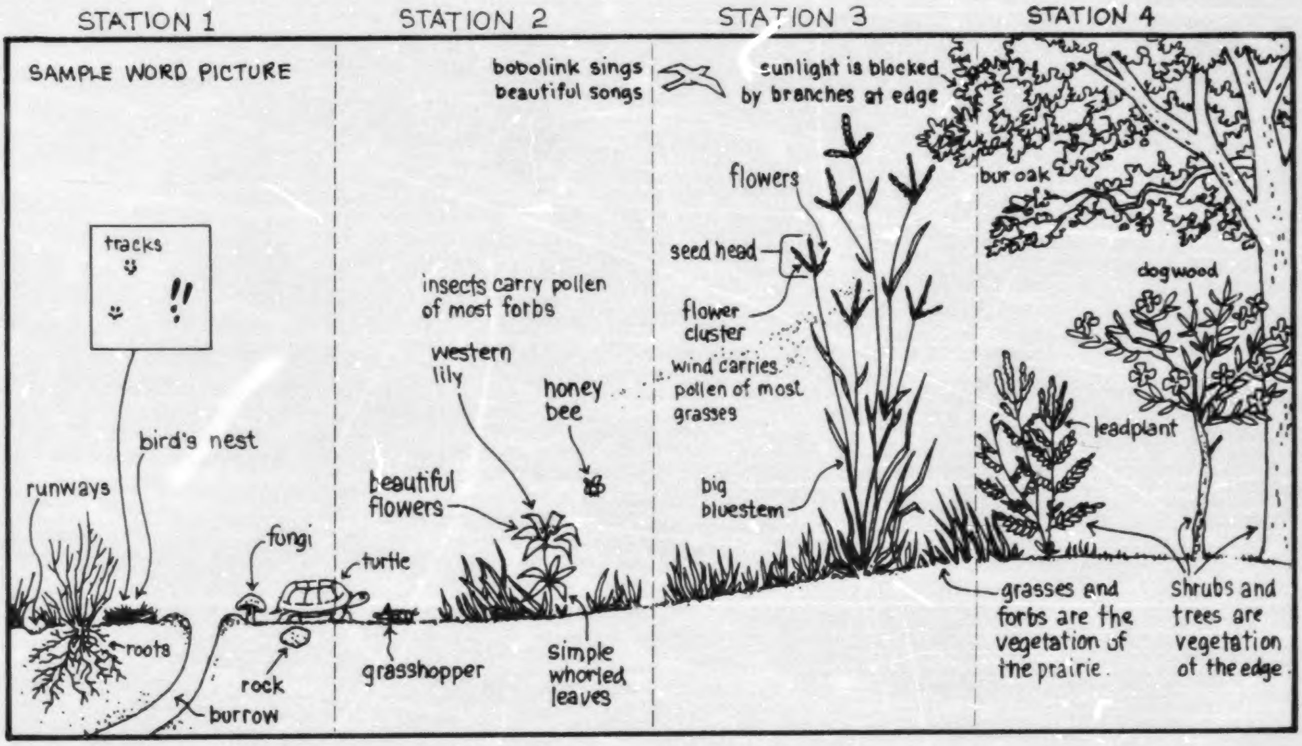
than at the middle of it __________? Do you think the prairie grasses and forbs would receive enough sunlight to survive if many trees also grew on the prairie ________________?

Can you understand how it is important for the survival of the prairie plants for fire to burn off any trees growing on the prairie ________________________?

Strategy F:
Many animals prefer to live at the edge of the prairie. By living along the edge, they can use the shelter provided by the shrubs and trees but also have access to the prairie as a hunting ground. List any animals or evidence of animals you can find along the edge.

Strategy G:
Now it is time for you to complete your prairie sleuthwork by creating your own word picture about the prairie. In the box below, draw the parts of the prairie studied at Stations 1, 2, 3, and 4. Please be sure to include any notes you feel are important. Use the SAMPLE BOX below for clues.

YOUR WORD PICTURE ABOUT THE PRAIRIE


STATION 1
STATION 2
STATION 3
STATION 4
SAMPLE WORD PICTURE
tracks
runways
bird's nest
roots
fungi
turtle
rock
burrow
grasshopper
insects carry pollen of most forbs
western lily
honey bee
beautiful flowers
simple whorled leaves
bobolink sings beautiful songs
sunlight is blocked by branches at edge
flowers
seed head
flower cluster
wind carries pollen of most grasses
big bluestem
bur oak
dogwood
leadplant
grasses and forbs are the vegetation of the prairie.
shrubs and trees are vegetation of the edge.

ACHIEVEMENT COUPON
STEP into the WILD

WORKING AS A SOIL CONSERVATION SPECIALIST

BRIEFING:

Most of the Illinois prairie is now used as farmland. On this farmland, the prairie grasses and forbs have been replaced with corn, soybeans and wheat. Beneath the surface of the farmland, however, the prairie soil still exists. This black soil is the richest in the world for growing crops. In fact, the fertility of the prairie soil is why Illinois ranks No. 1 in the nation among soybean-producing states and No. 2 in corn production. Illinois' rich soil is a gift of its prairies that helps feed people all around the world and provides jobs for 2 out of every 5 Illinoisans. But a terrible thing is happening to the prairie soil. Because of *erosion,* it is washing away from our farmlands and polluting our lakes, streams and rivers.

In Illinois Soil Conservation Specialists from the United State's Department of Agriculture and the County Soil and Water Conservation Districts work with farmers to help them control soil erosion on their land. It is the job of these Specialists to recommend farming practices that will protect the land from wind and water erosion. Begin your work as a Soil Conservation Specialist by completing Step 1.

STEP 1 EXAMINING THE PROBLEM OF SOIL EROSION IN ILLINOIS:

WHAT IS EROSION?

Erosion is the washing or blowing away of soil due to the forces of water or wind. In Illinois, where rainfall averages 48 inches a year, rainfall causes five times as much erosion as wind. There are three main types of water erosion:

Splash erosion: *Splash erosion* happens when raindrops hit the ground and splash away particles of soil. Single raindrops may seem harmless but they explode on the bare ground like bombs. A raindrop can blast soil particles two feet into the air and drop them as far away as five feet.

Sheet erosion: Splash erosion knocks soil particles loose and sheets of water running across the ground carry the soil particles away, usually downhill into a ditch, stream, lake or river. In this way, *sheet erosion* washes away the rich topsoil, leaving only the subsoil and sometimes the bare bedrock.

Gully erosion: *Gully erosion* happens when water digs out channels in the ground.

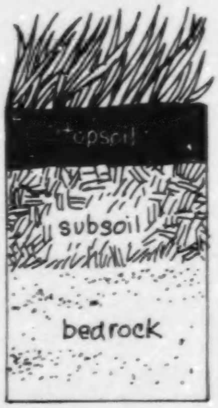
WHAT IS THE EXTENT OF SOIL EROSION IN ILLINOIS?

188 million tons of topsoil is washed or blown away in Illinois every year. That same amount of soil would be enough to resod every square inch of Cook County every spring. Of the 24 million acres of farmland in Illinois, soil erosion is *severe* on 10 million of those acres. Most of the soil is washed or blown into our waterways. Enough soil goes into the Mississippi River every year to build an island one mile long, one-quarter mile wide and 200 feet high.

WHY IS SOIL EROSION HARMFUL?

Soil erosion is very harmful to people as well as wildlife. Listed below are four harmful effects of soil erosion.

Reduced Crop Production: The topsoil contains important nutrients such as potassium, phosphorous and nitrogen. These nutrients help plants such as corn and soybeans grow. When topsoil is blown or washed from farmland, those nutrients go with it. As a result the nutrient-poor soil cannot produce as many plants. Over the last century, the productivity of Illinois farmland has dropped an estimated 2.[illegible] percent due to soil erosion. This represents a loss of $110 million per year to the state's economy. During the 1930's some farmland in southern Illinois became so severely eroded, it had to be abandoned. At the present time, a bushel and a half of topsoil is lost for every bushel of corn harvested in Illinois. If soil erosion continues, farmers may simply run out of topsoil to produce crops.



The nutrient rich topsoil of Illinois is washing and blowing away. In northwestern Illinois, the original thickness of topsoil was 10". Now the topsoil is only 4" deep. In extreme southern Illinois, the topsoil has shrunk from 14" deep to 5". Less topsoil means less crop production.

Water Pollution from Soil: The millions of tons of soil that are washed or blown from farmland end up in our streams, lakes and rivers. *This misplaced soil is the number one pollutant of our waterways in Illinois.* Suspended in water, soil becomes sediment and sediment is often fatal to aquatic wildlife. By clouding the water, sediment stops the flow of sunlight to plants. As a result, the plants cannot conduct photosynthesis to make food energy and they die. In turn, the snails, insects and small fish who need to eat those plants also perish. The death of those small animals deprives larger fish, mammals and birds of the food they need to survive.

Sediment settled on the bottom of waterways forms a blanket of ooze that ruins the sand and gravel spawning beds of fish. This blanket of ooze is too unstable to support plant growth. And since plants produce oxygen, the oxygen supply in the water drops as plants die. Sooner or later, all organisms living in the water suffer from a lack of oxygen.

Sediment also hurts people. We need clean, not muddy water to drink.

Water Pollution From Chemicals: When soil washes from a farm field into a waterway, it carries with it weed killers, fertilizers and pesticides. These chemicals are harmful to people and wildlife. In 1980, 13 of the recorded 23 fish kills in Illinois were traced to farm chemicals that had been washed into waterways by heavy rains. These same deadly chemicals also contaminate underground water reserves. Once contaminated the water in these reserves is undrinkable. It will be decades, possibly even hundreds of years, before the water can be used again. Already dozens of underground water reserves in the United States have been closed because the water is polluted with harmful chemicals.

Flood Damage: In many parts of the United States, including Illinois, flooding is a terrible problem that causes deaths, the loss of homes and the destruction of entire towns and villages. These floods are caused in part by soil erosion. As more and more soil flows into a river, there is less room within the banks of the river for water. When a heavy rain comes, a river full of sediment cannot hold all of the water rushing in to it and a flood is the result.

Why Does Farmland Suffer From Soil Erosion More Than Other Types of Land? Farmland suffers from soil erosion because it is not covered by vegetative cover the year round. Most Illinois farmland is plowed in the fall and the bare, loose soil lies unprotected throughout the winter. When spring arrives, the soil is once again churned up by plowing and planting. The heaviest erosion occurs during the spring rains, just after the fields have been plowed and before crops have taken root and established a protective cover over the land. In Illinois, an acre of farmland loses 6.7 tons of topsoil per year. In comparison, an acre of forest or prairie loses only 1 to 2 tons of topsoil. Forest and prairies are protected against soil erosion because the deep roots of their trees, grasses and forbs anchor the soil to the earth and temper the forces of wind and rain.

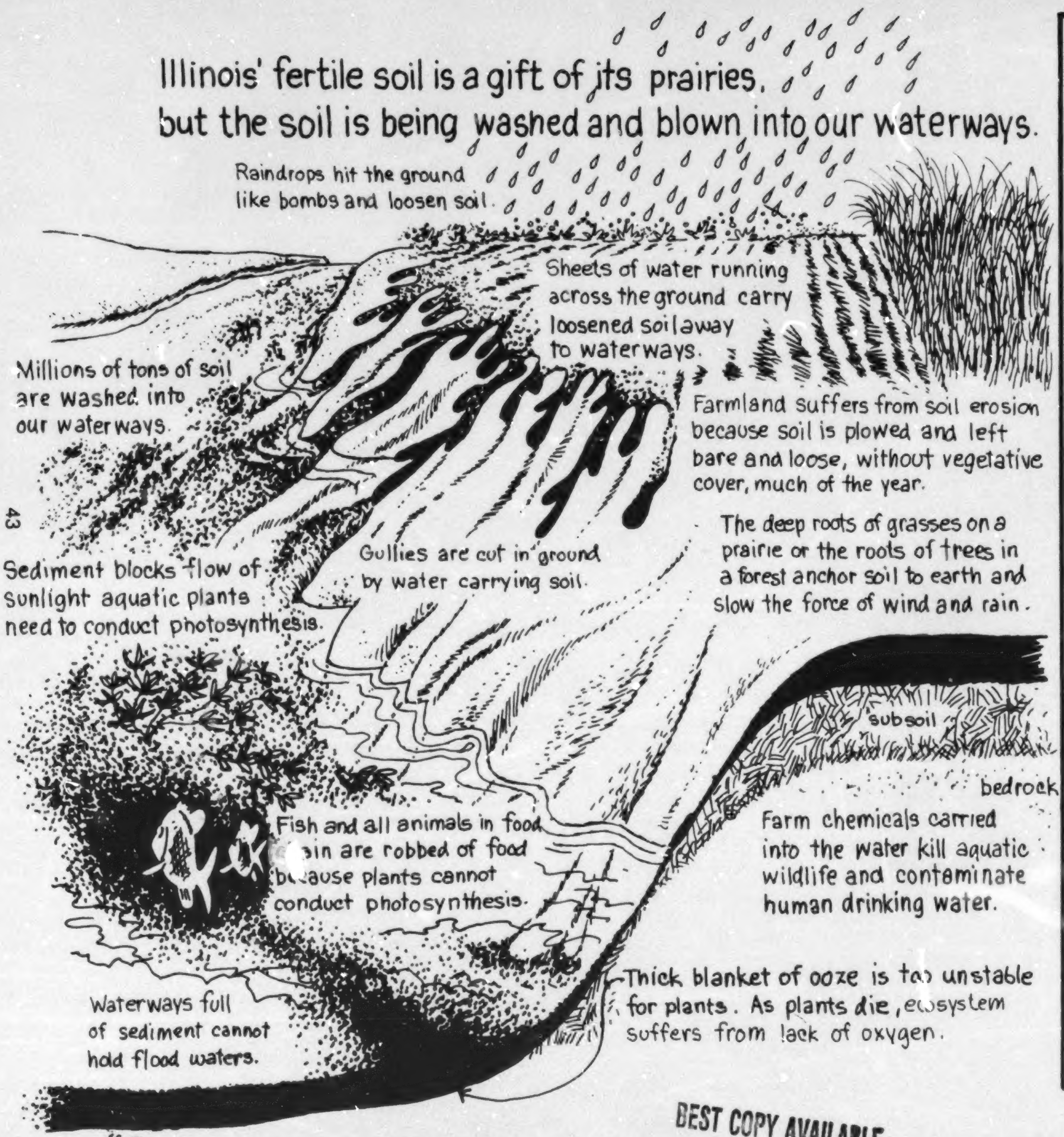
Can Topsoil Be Replaced? Yes, the soil is continually building new topsoil at a rate of 2 to 5 tons per acre per year. But since the topsoil in Illinois is eroding at an average rate of 6.7 tons per acre per year, the topsoil is being lost faster than it is being replaced.

Can Soil Erosion Be Controlled? There are many farming practices farmers can use to control soil erosion. You will investigate those farming practices in STEP 2. To complete your work at STEP 1, study carefully the word picture on page 43 and file your report on the right hand side of page 43.

YOUR REPORT:

1. What is a BMP?
2. What is the objective of soil conservation?
3. Can a BMP completely stop soil erosion?
4. What is the best farmers can do to reduce soil erosion?
5. If soil erosion is reduced enough, can the soil saved replace the soil that is lost?

STEP 2: INVESTIGATING THE SOLUTIONS TO SOIL EROSION. Farming practices that reduce soil erosion are called Best Management Practices (BMPs). In Illinois, many farmers use BMPs on their land to conserve soil. It is your assignment to investigate nine BMPs, *conservation tillage, contour farming, terracing, strip cropping, crop rotation, manmade ponds, field borders, grass waterways* and *reforestation/prairie restoration.* All of these practices meet the objective of soil conservation which is to produce needed crops and at the same time, protect soil against water and wind erosion. No farming practice can completely stop soil erosion. The best farmers can do is reduce soil erosion by using these BMPs. If soil erosion is reduced enough, the soil can naturally produce enough topsoil each year to make up for the loss. To complete your investigation of BMPs, study the description of the nine BMPs on page 44 and fill out your report on BMPs above. Then match the description of each BMP to the correct illustration of that BMP on page 45.



Illinois' fertile soil is a gift of its prairies, but the soil is being washed and blown into our waterways.

Raindrops hit the ground like bombs and loosen soil.

Sheets of water running across the ground carry loosened soil away to waterways.

Millions of tons of soil are washed into our waterways.

Farmland suffers from soil erosion because soil is plowed and left bare and loose, without vegetative cover, much of the year.

The deep roots of grasses on a prairie or the roots of trees in a forest anchor soil to earth and slow the force of wind and rain.

Gullies are cut in ground by water carrying soil.

Sediment blocks flow of sunlight aquatic plants need to conduct photosynthesis.

Fish and all animals in food chain are robbed of food because plants cannot conduct photosynthesis.

Farm chemicals carried into the water kill aquatic wildlife and contaminate human drinking water.

Thick blanket of ooze is too unstable for plants. As plants die, ecosystem suffers from lack of oxygen.

Waterways full of sediment cannot hold flood waters.

YOUR REPORT

1. What is the gift of the Illinois prairie to farmland?
2. How does this gift benefit Illinois and the rest of the world?
3. What is erosion? Explain the three types of water erosion.
4. How much topsoil is blown or washed away in Illinois every year?
5. Explain four different ways in which soil erosion is harmful to people and wildlife.
6. Soil washes and is blown into streams and rivers. Does some of this soil end up in the ocean? If yes, explain how.
7. Why is farmland so susceptible to soil erosion?
8. Explain how topsoil is being lost faster than it is being produced.

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BEST MANAGEMENT PRACTICES

BMP 1. CONSERVATION TILLAGE

Tillage refers to the way land is prepared for planting. Under the tillage system most commonly practiced in Illinois, a moldboard plow is used during the fall or spring to cut and lift several inches of topsoil, turning it over and burying the stubble left from last season's crop. This form of tillage, known as "clean tillage" leaves the topsoil loose and bare of vegetative cover. In this condition, the topsoil is completely unprotected against wind and rain. *Conservation tillage,* on the other hand, leaves the soil protected by crop stubble. There are several forms of conservation tillage. One is *chisel plowing.* When a farmer uses a chisel plow rather than a moldboard, the chisel plow leaves stubble on the field, slicing through it rather than burying it. *No-till farming* is another form of conservation tillage. With a no-till system, the farmer does not plow up the land; instead, the farmer simply plants this year's crop directly into the stubble of last year's crop. This is done with the help of a special heavy planter which drills into the soil beneath the stubble. The stubble left on no-till land protects the soil from wind and rain. A no-till system also saves the farmer time, fuel and money from not having to plow the land.

BMP 2. CONTOUR FARMING.

When rows of plants run downhill, water flows down the plow furrows and carries the soil with it. With *contour farming,* the plants are planted in rows that go across the field, following the natural contour of the land. When this is done, the plow furrows catch the water before it can run downhill.

BMP 3. TERRACES.

Terraces are low rounded ridges of earth built across a sloping field. The terraces form step-like ridges which catch and hold water as it runs downhill. Terraces change a long slope into several short slopes.

BMP 4. STRIPCROPPING.

Row crops such as corn and soybeans protect soil very little. Close growing crops such as alfalfa and hay form a protective cover over the soil. With *stripcropping,* strips of close growing crops are planted between row crops. The close growing crops catch and slow water washed from the soil planted in row crops.

BMP 5. CROP ROTATION.

Crop rotation is accomplished by planting different crops in a field from one year to the next. An example of a 3-year rotation is corn the first year, wheat the second and a mixture of clover and red top, the third. With this rotation, the field may be churned up by plowing only one year in three — the year it is planted in corn. During the second and third years the fibrous roots of wheat, red top and clover hold the soil in place, and the clover, being a legume, adds nitrogen to the soil. There is much less soil erosion under rotated crops than there is under a crop like corn grown year after year on the same land.

BMP 6. STOCK PONDS.

A *stock pond* built in a low area catches water running downhill. A pond is often built where a large gully has formed. When this is done, the pond serves as a filter for water running through the gully from a nearby field. The water flows into the pond and the soil in the water settles to the bottom of the pond. If the pond becomes too full of water, the landowner can release some of the water slowly but most of the soil stays in the pond.

BMP 7. FIELD BORDERS.

The edges of a field erode faster than the rest of the field because water flows along the plow furrows to the edge of the field. This sometimes causes a gully to start at the edge of a field. When *field borders* are planted to grasses, shrubs or trees, the vegetation protects the soil from runoff water and filters out harmful farm chemicals. These field borders also provide excellent wildlife habitat.

BMP 8. GRASS WATERWAYS.

Grass waterways are wide, shallow, channels planted in grass. Grass waterways are used to carry away any water that cannot be absorbed by the soil. The grass roots in the waterway hold the soil in place and keep it from being washed away. The grasses also slow the flow of the water and the soil particles being carried in the water drop into the grasses, rather than continuing on with the water. Without grass waterways to carry off excess water, gullies often form. These gullies can become so large, a farmer cannot cross them on a tractor.

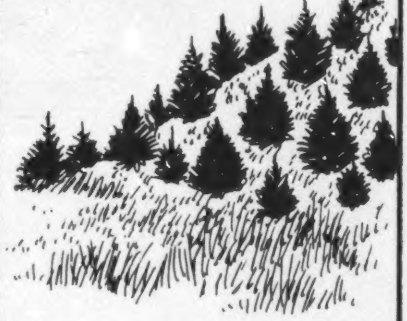
BMP 9. REFORESTATION/ PRAIRIE RESTORATION.

Some land in Illinois has poor soil or is simply too wet, hilly or rocky to make good farmland. Unfortunately, much of this land is farmed and soil erosion on this land is especially high. By planting this land in trees, or prairie, the farmer can establish a vegetative cover that will protect the soil from erosion. *Reforestation* and/or *prairie restoration* protects not only the land it is planted on, but also the land surrounding it by serving as a windbreak and a water catcher.

BEST MANAGEMENT PRACTICES

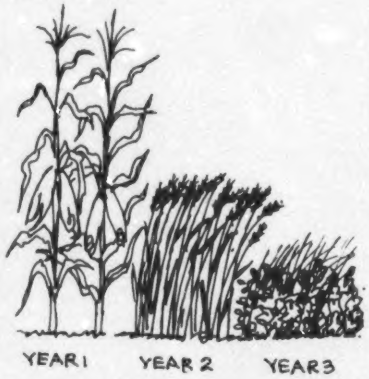
Match these illustrations of BMPs to the descriptions of BMPs on page 44.

restoring trees or grasses on poor farmland protects soil and provides lumber and firewood, wildlife and beauty.



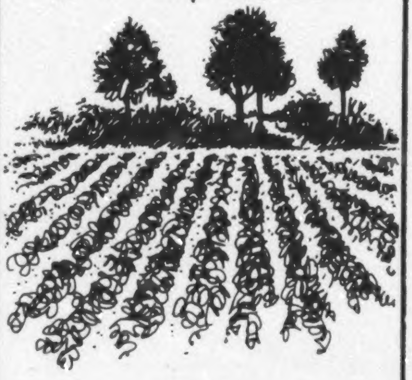
BMP ______________

crops rotated on same land save soil.



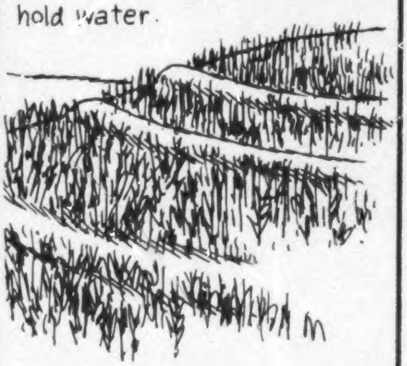
BMP ______________

Shrubs and grasses planted at edge of field prevent erosion.



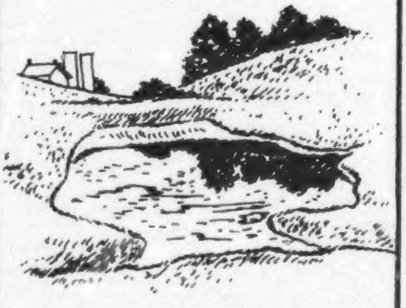
BMP ______________

low-rounded ridges of earth run across slope to catch and hold water.



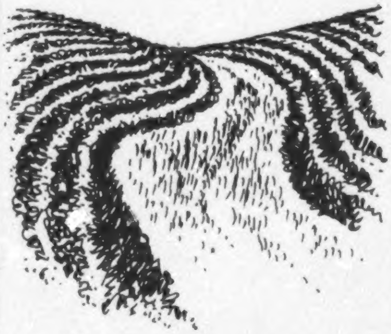
BMP ______________

This conservation practice catches and filters water and provides water for livestock and habitat for aquatic wildlife.



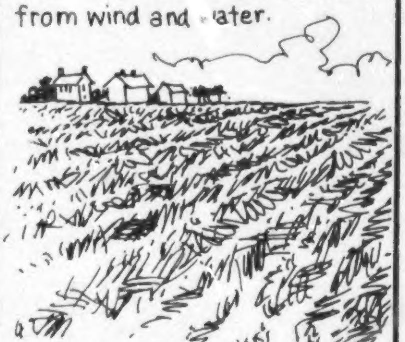
BMP ______________

channels, planted in grass, catch and hold soil and slow flow of water.



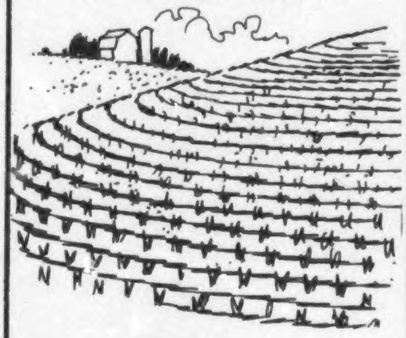
BMP ______________

new form of tillage leaves crop stubble on land to protect soil from wind and water.



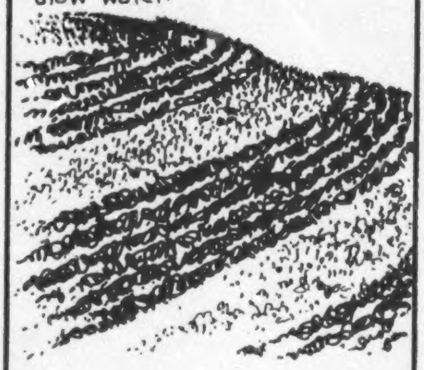
BMP ______________

plow furrows that run across the land catch and hold water.



BMP ______________

close growing crops planted between row crops catch and slow water.



BMP ______________

STEP 3: RECOMMENDING BMPs FOR FARMLAND. Now it is time to put what you have learned about soil erosion and BMPs to work. Below you will meet Mr. Louis Webb, a farmer from Brown County, Illinois. Mr. Webb has a 250 acre farm that is suffering badly from soil erosion. He has contacted you as a Soil Conservation Specialist to recommend BMPs for his farmland. It is your job to carefully look over Mr. Webb's land and to recommend BMPs. Use page 45 as a guide to help you decide which BMPs to recommend. You will also need to explain why you have recommended certain BMPs for certain areas of the farm. Remember, a plan that calls for a combination of BMPs is the best plan for conserving soil. As you walk over and study Mr. Webb's 250 acre farm, you see the farm is divided into four main areas.

AREA 1: You find this 180 acre area to be level with good soil. Mr. Webb tells you, however, that a large amount of topsoil washes off the land during times of heavy rainfall. He also tells you that during the spring of 1981, what "seemed like tons of topsoil" blew off the land during severe wind storms. Along the edges of Area 1, you can see that the land is eroding the worst. You ask Mr. Webb about how he prepares the land for planting and he says he practices "clean tillage" on the land. Mr. Webb also says he plants corn on Area 1 every year.

For Area 1, you recommend the following BMP(s). Please explain how the BMP(s) you are recommending will help save soil.

AREA 2: Area 2 contains 40 acres of farmland that is on gently sloping land. The soil is good in Area 2 but erosion is a problem. The rows of corn in Area 2 run up and down the slope and water is washing down the hill in the plow furrows. In some places, water running downhill is cutting out large gullies.

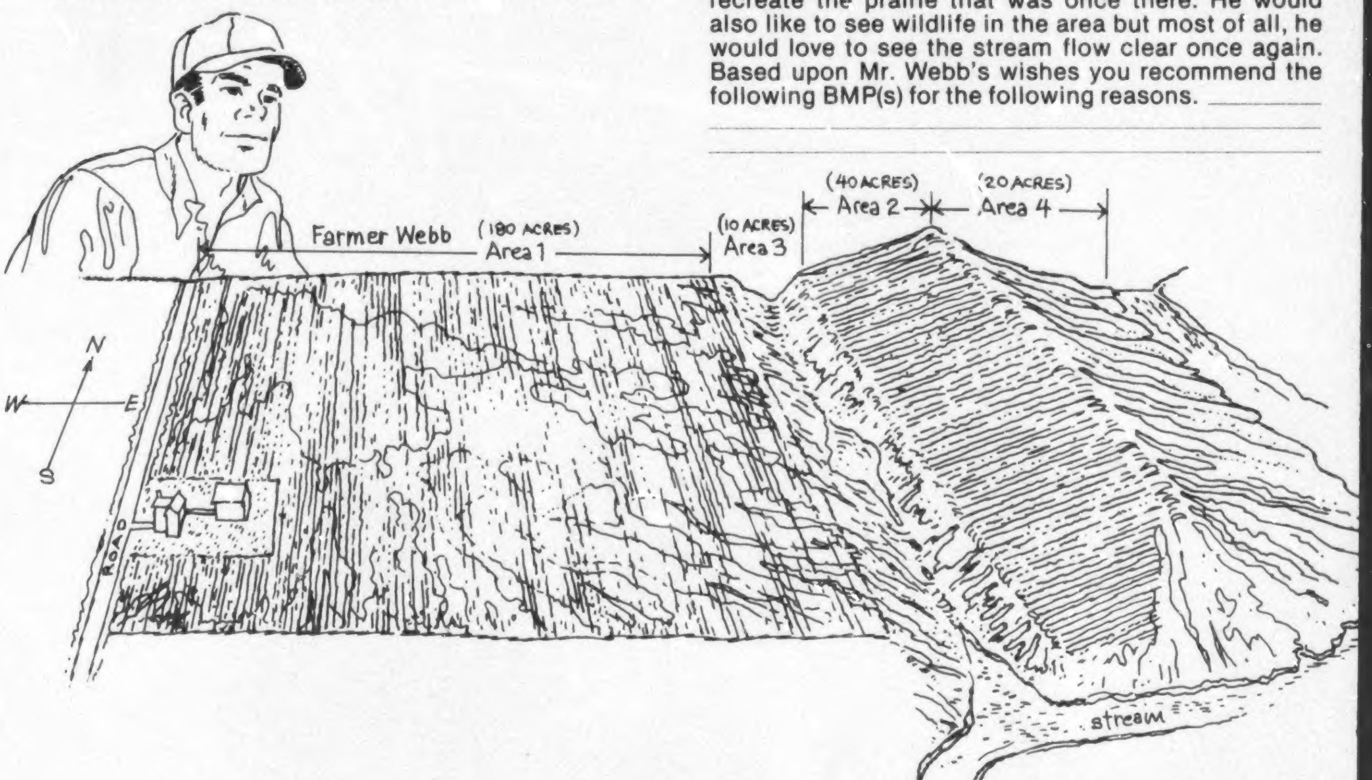
You decide Area 2, with proper BMPs, could be better protected against soil erosion and you recommend these BMPs for the following reasons.

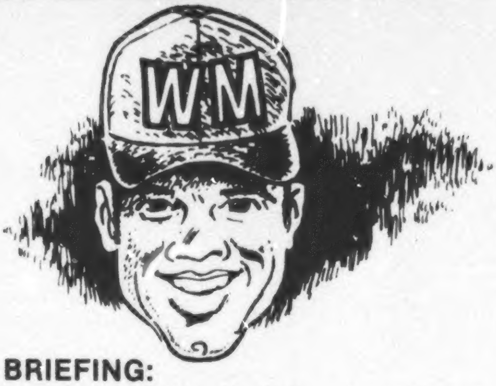
AREA 3: Area 3 is a low stretch of land that lies between Area 1 and 2. Water carrying soil off Area 1 and Area 2 flows into Area 3. This water has formed a large gully running north to south in Area 3. This gully, because its bare soil banks are not protected by grass, is continually being cut deeper by water carrying soil. This water flows through Area 3 and dumps soil into the stream at its southern border. In the lowest spot of Area 3, a large crater full of water is forming.

You decide BMPs are needed for Area 3. You ask Mr. Webb what he would like to do with Area 3 and he tells you he would like to have a place to fish and to water livestock. For Area 3, you recommend the following BMPs for the following reasons.

AREA 4: Area 4 is a very steep hillside that covers about 20 acres. At the base of the hill is a lovely stream. Mr. Webb says that when he was a child, the Area was a hill prairie where he found many beautiful grasses and wildflowers and an abundance of wildlife. He also says he used to swim in the stream but that he doesn't allow his own children to swim in the stream because it is so muddy. Mr. Webb states that so much topsoil has washed off the hillside into the stream, the land no longer produces a good crop.

You decide Area 4 is eroding so badly it can no longer serve as farmland. You ask Mr. Webb what he would like to do with Area 4 and he says he would like to recreate the prairie that was once there. He would also like to see wildlife in the area but most of all, he would love to see the stream flow clear once again. Based upon Mr. Webb's wishes you recommend the following BMP(s) for the following reasons.





WORKING AS A WILDLIFE MANAGER:

ACHIEVEMENT COUPON
STEP into the WILD

BRIEFING:

In Illinois, Wildlife Managers from the Illinois Department of Conservation, U.S. Fish and Wildlife Service, universities and private companies work to provide habitat for wildlife. With proper habitat, wildlife can find enough food, water, and cover to survive and reproduce. In simple terms, if there is habitat, there is wildlife.

But where in Illinois is this habitat? Since 95% of the land in Illinois is owned by private landowners, most habitat is on private land. For this reason, the job of a Wildlife Manager is to help private landowners manage their land to provide as much habitat as possible. If a landowner contacts a Wildlife Manager and asks for assistance in managing his or her land, the strategy of the Wildlife Manager is as follows: 1) Meet with the landowner and discover what he or she wants to do with the land; 2) Study the land and make a map of it. On the map, draw the habitat that already exists and the wildlife that is present; and 3) Prepare a *wildlife management plan* for the land that will protect and develop habitat. Now it is time for you to work as a Wildlife Manager. Begin by completing Step 1.

STEP 1:
EXAMINING THE PRINCIPLES OF WILDLIFE MANAGEMENT

What is the best Wildlife Management Plan?

An *Ecosystem Plan* is the best Wildlife Management Plan. *An ecosystem is defined as a community of plants and animals living together and interacting with their habitat.* For example, a prairie ecosystem includes the soil, water, and air of the prairie as well as the plants and animals living there. When a Wildlife Manager prepares an *Ecosystem Plan,* he or she recommends practices that will benefit not just one or two plants or animals, but the entire ecosystem or community. Study carefully the word picture on page 48 to understand an *Ecosystem Plan.* Label all the species included in the word picture in the spaces provided. Use the Giant Prairie Coloring Sheet as a field guide to help you identify the species.

Why is Wildlife Management Necessary?

Two hundred years ago there was no need for wildlife management in Illinois. Millions of acres of forests, prairies and wetlands provided wonderful homes for healthy populations of plants and animals. But then came white settlers who cleared forests, plowed prairies and drained wetlands. By 1900, towns, cities, roads, factories and farmland had replaced most of the wild land in Illinois. Suffering from the loss of habitat plants and animals began to decline in numbers. Today, the clearing of our wild lands continues and the small bit of natural habitat that does exist is constantly threatened by development and/or damage from pollutants, soil erosion and other misuses of the land. As a result, the population of nearly every wildlife species is slipping. Some populations are dangerously low and these species are recognized as endangered or threatened. Wildlife management is needed to help stop or at least slow down this downward trend in wildlife populations. This can only be done by providing wildlife with the homes or habitat they need to survive.

Why is Hunting Included as Part of Wildlife Management?

Given good habitat conditions, a wildlife species produces more young each breeding season than is necessary to carry on the population of that species. This high rate of reproduction is good because most of the young will die before they reach adulthood. The few that do survive are usually enough to carry on the population. For example, a female eastern cottontail may produce three litters or 15-18 young rabbits each breeding season. If the population of cottontails in a particular area is to remain stable, only two young cottontails per female (one to carry on for her and one to carry on for her mate) need to survive to produce more young.

The rest of the young cottontails will probably die from disease, or serve as prey for predators. This high rate of mortality is part of nature's scheme because the habitat can provide enough food, water, and cover for only a certain number of cottontails. The number of animals a habitat can support is called its *carrying capacity.* The carrying capacity of a habitat would never be large enough to support a population of cottontails that did not suffer normal losses.

In Illinois, certain species of wildlife, such as the eastern cottontail, but also many others including ring-necked pheasant, bobwhite quail, and Canada goose, are hunted legally. Wildlife managers monitor the populations of these species carefully. If more young are being produced than is necessary for the population of a species to continue, the wildlife management agency, such as the Illinois Department of Conservation or U.S. Fish and Wildlife Service, sets a limit to the number of animals that can be harvested. These limits are known as bag and possession limits.

Hunters are then allowed to hunt some of the animals that may have died anyway from natural causes. Proper regulation of hunting is an important part of wildlife management. By setting bag and possession limits, wildlife agencies make sure no one hunter takes more than his or her share of wildlife. Bag and possession limits also may protect wildlife from over-harvesting. Before hunting regulations were enforced in Illinois, many species such as bison, upland sandpiper and greater prairie chicken suffered greatly from over-harvesting.

What is the History of Hunting in Illinois?

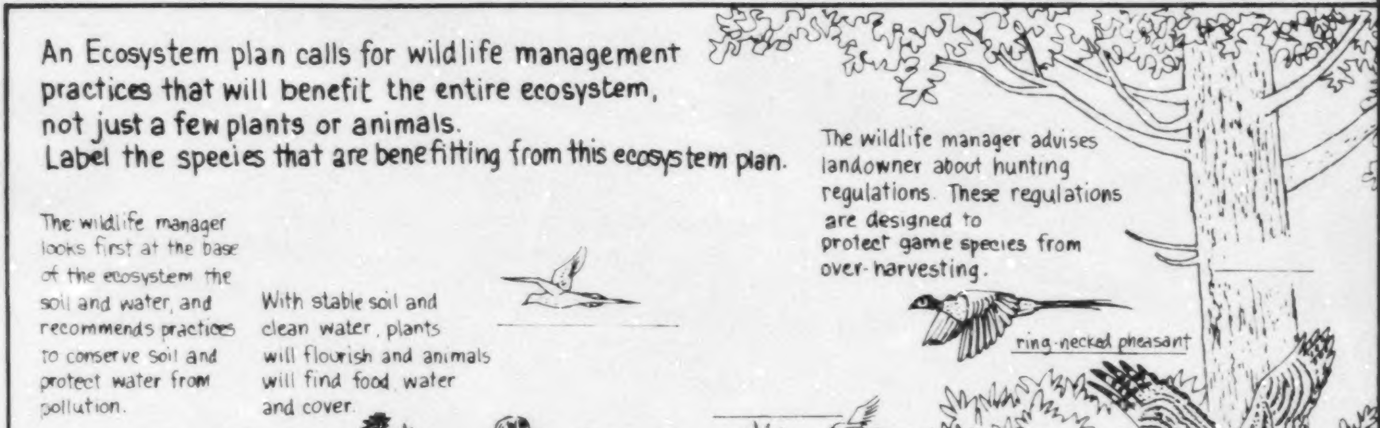
Native Americans were the first humans to hunt wildlife in Illinois. When white settlers came to Illinois, they too hunted game such as bison, elk, deer, beaver and raccoon. Today, several generations later, many people still hunt wildlife, just as their parents and grandparents did before them. For these Illinoisans, hunting is a tradition that has deep roots. The reasons for hunting have changed, however, over the years. Our ancestors hunted wildlife so they could use the meat and fur of the animals they took to feed and clothe their families. Modern day hunters view hunting more as a sport that is challenging and enjoyable. The meat and fur hunters take today is certainly appreciated but it makes up just a small part of the food a family needs.

Can All Species of Wildlife Be Hunted?

The answer is NO. In fact, the vast majority of wildlife in Illinois, over 400 species, is protected by law from hunting, trapping and from any other form of disturbance. Protection of these species is a very important part of wildlife management. In addition to providing beauty and variety, these animals serve as crucial links in the food web of every ecosystem. To complete your work at Step One, file your report.

YOUR REPORT:

1. Explain what is meant by the term, "if there is habitat, there is wildlife".
2. Explain the job of a wildlife manager.
3. Describe the strategy of a wildlife manager who gets a call for assistance from a landowner.
4. Using the word picture below as a guide, describe in your own words an *ecosystem* wildlife management plan.
5. Explain why wildlife management in modern day Illinois is necessary. Do you think wildlife management is needed in every state?
6. Explain the term "carrying capacity".
7. Explain why wildlife species produce more young each breeding season than is necessary to carry on the population of that species.
8. Why is proper regulation of hunting important?
9. Why is it important to protect species that are not legally hunted in Illinois?



An Ecosystem plan calls for wildlife management practices that will benefit the entire ecosystem, not just a few plants or animals.
Label the species that are benefitting from this ecosystem plan.

The wildlife manager looks first at the base of the ecosystem the soil and water, and recommends practices to conserve soil and protect water from pollution.

With stable soil and clean water, plants will flourish and animals will find food, water and cover.

The wildlife manager advises landowner about hunting regulations. These regulations are designed to protect game species from over-harvesting.

The wildlife manager recommends keeping and/or planting vegetative cover, such as grasses, shrubs, trees and some crops.

Vegetative cover provides cover and food for smaller animals. Larger animals also find cover and food and benefit by preying on smaller animals.

The wildlife manager also advises the landowner about species which are protected by law from hunting and trapping. Protection of these species is important because they are valuable members of the ecosystem.

STEP 2: INVESTIGATING WILDLIFE MANAGEMENT PRACTICES

As you learned from the word picture on page 48, an ecosystem management plan includes a combination of wildlife management practices (WMPs). Although some WMPs deal directly with wildlife protection through game and protected species laws, all other WMPs involve HABITAT development, maintenance and protection. Below are seven boxes. In each box, a WMP is described and several wildlife species that benefit from that practice are listed.

Study carefully the description of each WMP. Then match the description of each WMP to the illustration of that WMP on page 50. To complete each match, label the illustrations on page 50 in the space provided at the bottom of each box, label the species each practice benefits and complete the caption by each illustration. Use the GIANT PRAIRIE COLORING PAGE as a field guide to help you identify the wildlife species.

bullsnake dickcissel
tumble bug striped skunk

This practice calls for the planting of grasses and legumes such as bromegrass, timothy, and red clover and alfalfa and small grains such as millet and milc. These crops provide food and cover for wildlife, anchor the soil in place an provide income for landowner.

WMP 1 FOOD AND COVER CROP PLANTING

least skipper butterfly
ornate box turtle short-eared owl
franklin's ground squirrel

This practice is often done on farmland that was once prairie, especially if the land is suffering from soil erosion. Native prairie grasses such as big and little bluestem, Indiangrass, switchgrass and side-oats grama and prairie forbs such as rattlesnake master and purple prairie clover are planted. The restored prairie adds color and beauty to the land, provides food and cover for wildlife and keeps the soil in place.

WMP 2 PRAIRIE PLANTING

spotted cucumber beetle
eastern meadowlark
upland sandpiper
short-eared owl
prairie vole

Conservation mowing calls for the mowing of all grassy areas such as field borders, grass waterways, and roadsides after the nesting season of wildlife is over. If landowners wait until August 1 to mow, ground nesting animals can raise their young safely in good cover.

WMP 3
CONSERVATION MOWING

painted lady butterfly badger
American toad
small-mouthed salamander
loggerhead shrike

This important wildlife management practice calls for leaving wild land, such as prairie, fencerows, brushy draws, forests and wetlands, WILD. Sometimes these wild lands require some help from wildlife managers. For instance, a prairie needs to be burned every few years so trees won't overtake the prairie. Some forests, too, need management assistance. When a forest is harvested, it is best to leave plenty of mature, healthy trees to carry on the forest. When managed in this way, forests and all other wild lands provide habitat for wildlife and natural protection of the soil. The wild lands also provide places to hunt, camp, fish, and observe nature, as well as a beautiful Illinois landscape.

WMP 4
LEAVING WILD LAND WILD

robberfly western fox snake
coyote mourning dove
eastern cottontail

Trees and shrubs are planted at strategic locations to provide food (berries, nuts, bark and leaves) and cover for wildlife. The landowner may wish to plant many trees over several acres to create a *forest* habitat, or narrow strips of trees along or in between fields. These strips of trees, called *fencerows*, provide an *edge* habitat and also serve as covered *travel lanes* for wildlife. These travel lanes are very important because they connect different areas where there is habitat. By using these travel lanes, wildlife can travel safely from one area to another.

WMP 5
TREE AND SHRUB PLANTING

bumble bee red fox
gopher frog Canada goose

If soil erosion is a problem, soil conservation practices such as conservation tillage, contour farming, terracing and grass waterways, are recommended. Landowners can practice conservation tillage by not plowing fields in the fall. Crop stubble left on fields through the winter provides food for wildlife and holds the soil in place. Conservation tillage and all other soil conservation practices benefit wildlife by providing a stable base for plants which provides food and cover. Good soil conservation also helps keep the ponds, streams, and rivers in the area clean. The landowner also benefits because land with stable topsoil produces a greater harvest of crops.

WMP 6
SOIL CONSERVATION

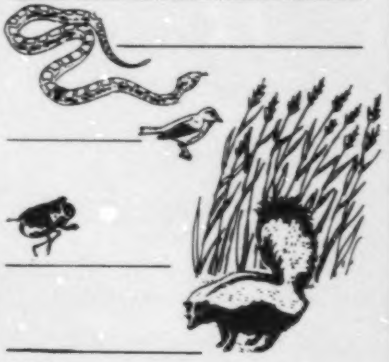
small-mouthed salamander
blueracer little brown bat
killdeer

A stock pond built in a low area catches water running downhill. A pond is often built where a large gully has formed. When this is done, the pond serves as a filter for water running through the gully from a nearby field. The water flows into the pond and the soil in the water settles to the bottom of the pond. If the pond becomes too full of water, the landowner can release some of the water slowly but most of the soil stays in the pond. This helps keep the water in nearby streams and rivers clean and free of soil. The stock pond also provides excellent habitat for aquatic wildlife as well as a source of water for other wildlife. The pond benefits the landowner by providing water for livestock as well as a place to fish and observe nature.

WMP 7 STOCK POND

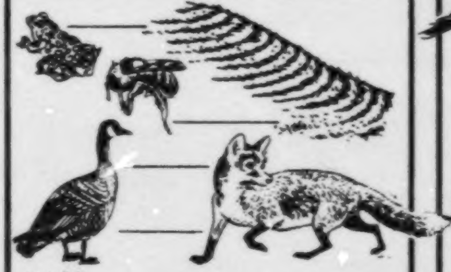
WILDLIFE MANAGEMENT PRACTICES

Legumes, grasses and small grain crops provide ____________



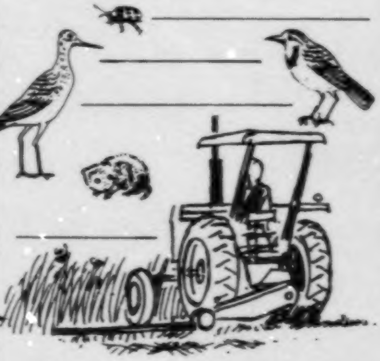
WMP____________

Farming practices that save soil include conservation tillage, contour farming, terracing and grass waterways. The benefits of these practices are ____________



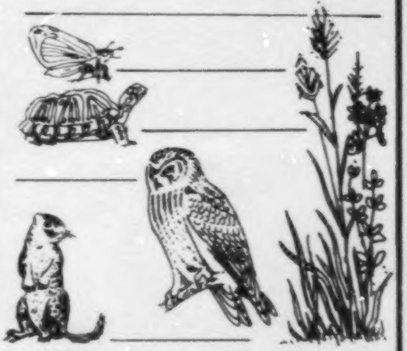
WMP____________

Mowing in ________ or later gives wildlife a chance to raise young. .



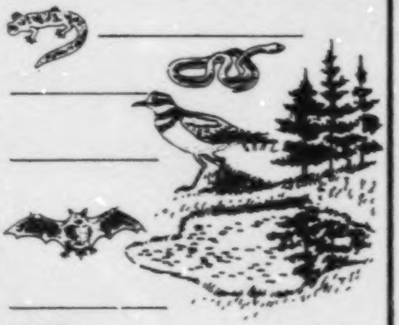
WMP____________

Native grasses and forbs are planted to create prairie. New prairie provides ____________



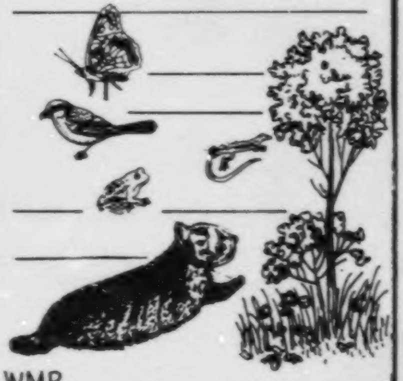
WMP____________

This practice is carried out in a low-lying area that normally collects water. Once built, it provides ____________



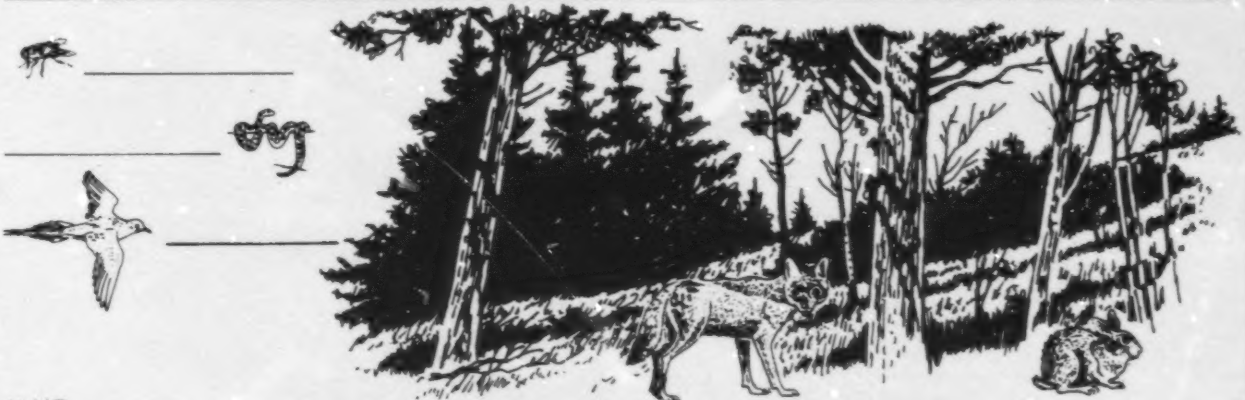
WMP____________

Wild land left wild provides ____________



WMP____________

Forest and edge habitats are created by planting trees and shrubs. Trees and shrubs provide ____________



WMP____________

STEP 3: PREPARING A WILDLIFE MANAGEMENT PLAN.

Now it is time to put to work what you have learned about wildlife management. Mr. Louis Thompson has contacted you as Wildlife Manager and asked you to prepare a wildlife management plan for the 250 acres of land he and his family owns. As your first step you meet with Mr. Thompson and learn that he wants to provide wildlife habitat and conserve soil on his land. Mr. Thompson asks you to prepare a wildlife management plan that will provide for the following things on the land.

A. At least 6 fencerows that will connect with each other to provide travel lanes for wildlife.
B. One brushy draw area.
C. Two forest areas.
D. One area planted in native grasses and forbs to create a prairie.
E. One pond.
F. Good soil conservation on farmed areas.
G. A windbreak of trees by the house.
H. Good nesting habitat in grassy areas.
I. One area planted to a food and cover crop.
J. At least 200 acres of cropland.

As your second step, you study Mr. Thompson's land and prepare a map of it. (The map is shown on page 52). Your third step is to prepare a wildlife management plan for the 250 acres. Study the description of the four plots included in the 250 acres. You will see that some of the things Mr. Thompson wants on his land are already there. However, most of the features Mr. Thompson wants are missing from the land. It is up to you to recommend wildlife management practices (WMPs) that will provide the fencerows, forests, a prairie, soil protection, a pond, nesting habitat, brushy draws, and a food and cover crop. Using the WMPs on page 50 as a guide, begin your wildlife management plan at PLOT 1. Study the description of the Plot. Then recommend WMPs for each of the Areas in the Plot. Please explain how the WMPs you are recommending will provide for the features Mr. Thompson wants on his land. As your last step, list several wildlife species that will benefit and draw the WMPs on the map.

PLOT 1: This 95 acre plot is divided into 4 areas.
Area A contains the house, barn and driveway. The vegetation in this area is strictly lawn grass. List below the WMP(s) you recommend for Area A. Explain your choice(s). ______

List several species of wildlife that will benefit. ______

Draw the practice(s) on the map.

Area B is flat land planted in soybeans and plowed in fall. Area B contains a fencerow running halfway along its northern border. List the WMP(s) you recommend for Area B. Explain your choice(s). ______

List several species of wildlife that will benefit. ______

Draw the practice(s) on the map.

Area C is flat land planted in hay and mowed in early July. List the WMP(s) you recommend for Area C. Explain your choice(s). ______

List several species of wildlife that will benefit. ______

Area D is mostly flat land planted in corn and plowed in fall. The eastern border of Area D slopes slightly and the soil is eroding into the large gully in Plot 2. A fencerow runs along the southern border of Area D. List the WMP(s) you recommend for this Area. Explain your choice(s). ______

List several species of wildlife that will benefit. ______

Draw the practice(s) on the map.

PLOT 2: This 30 acre plot includes three areas.
Area E. This area is a low-lying stretch with a deep gully running through it. Water flowing through the gully is cutting away at the walls of the gully because they are not protected by grass. In fact, a big crater full of water is forming in the middle of the gully. List the WMP(s) you recommend for Area E. Explain your choice(s). ______

List several species of wildlife that will benefit. ______

Draw the practice(s) on the map.

Area F is sloping land planted in corn and plowed in fall. Soil is washing down the slopes of Area F into the gully in Area E. List the WMP(s) you recommend for Area F. Explain your choice(s). ______

List several species of wildlife that will benefit. ______

Draw the WMP(s) on the map.

Area G is steeply sloping land planted in corn and plowed in fall. Since Area G is steeper than Area F, the soil is eroding at an even greater rate into the stream at the bottom of the Area. Before Area G was cleared and turned into farmland, it was a forest and the roots of the trees held the soil in place. List the WMP(s) you recommend for Area G. Explain your choice(s). ______

List several species of wildlife that will benefit. ______

Draw the WMP(s) on the map.

PLOT 3: This 30 acre plot has three areas.
Area H is a low-lying stretch of land that contains the same gully found in Plot 2. List the WMP(s) you recommend for Area H. Explain your choice(s). ______

List several species of wildlife that will benefit. ______

Draw the WMP(s) on the map.

Area I is sloping land planted in corn and plowed in fall. Soil from Area I is washing down the slope into the gully in Area H. List the WMP(s) you recommend for Area I. Explain your choice(s). ______

List several species of wildlife that will benefit. ______

Draw the WMP(s) on the map.

Area J is a steep slope on the opposite side of the ridge from Area I. Like Area G in Plot 2, Area J is suffering terribly from soil erosion and the stream at the bottom of the slope is always muddy. Before Area J was plowed and used as cropland, it was prairie and the long roots of the prairie plants kept the soil from washing into the stream. List the WMP(s) you recommend for Area J.

List several species of wildlife that will benefit.

Draw the WMP(s) on the map.

PLOT 4: This 95 acre plot includes two areas:
Area K is a forest on mostly flat land. The eastern border of Area K slopes slightly toward the low lying area in Area H of Plot 3. Since Area K is planted in trees, the soil is not washing into the gully in Area H. List the WMP(s) you recommend for this Area. Explain your choice(s).

List several wildlife species that will benefit.

Draw the WMP(s) on the map.

Area L is flat land planted into two fields of corn. Area L is plowed in fall. A brushy draw fans out into Area L from Area K. A fencerow runs between the fields from the road halfway back to Area K. A grassy roadside can be found along the western border of Area L. List the WMP(s) you recommend for this Area. Explain your choice(s).

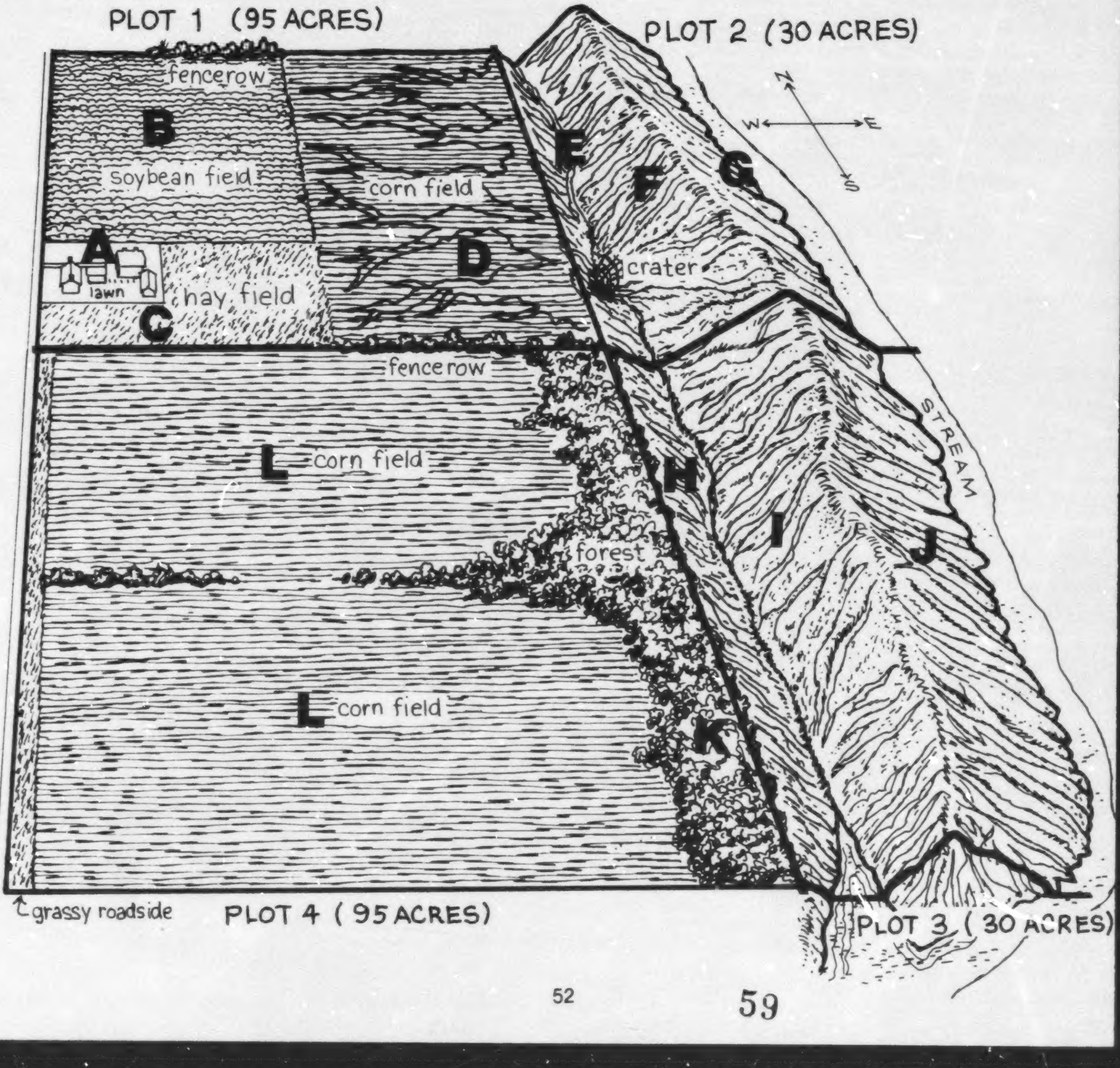
List several wildlife species that will benefit.

Draw your choice(s) on the map.

FINAL CHECKLIST:

List the Areas wherein you recommend WMPs that will achieve Mr. Thompson's objectives for his land:

improved soil conservation
2 forests
6 fencerows
1prairie area
1 pond
1 brushy draw
1 windbreak
good nesting habitat in grassy areas
1 food and cover crop
at least 200 acres of cropland


PLOT 1 (95 ACRES)
PLOT 2 (30 ACRES)
fencerow
B
soybean field
corn field
A
lawn
hay field
C
D
E
F
G
crater
N
W
E
S
fence row
L
corn field
H
I
STREAM
J
forest
L
corn field
K
grassy roadside
PLOT 4 (95 ACRES)
PLOT 3 (30 ACRES)

Working as a Conservation Police Officer:

ACHIEVEMENT COUPON
STEP into the WILD

BRIEFING:

The natural resources of Illinois are its waterways, land and wildlife. It is the job of Conservation Police Officers (CPOs) to make sure the laws that protect these resources are followed by everyone in Illinois. It is also the duty of the CPO to teach people how to use the outdoors in a safe and wise manner. The CPO conducts classes that show people how to hunt, boat and snowmobile safely. If outdoor accidents do occur, the CPO is usually the first person on the scene to lend a trained and helping hand. Informing the public about conservation laws and helping them to understand why these laws are necessary are also an important part of the CPO's work. Fortunately, most Illinoisans work together with the CPO to protect our precious natural resources. But when people do break the law by abusing our natural resources, it is the CPO that must stop them and explain to them how they are spoiling the environment for other people. And since Conservation Police Officers have to uphold the law in dangerous situations, you could say they put their lives on the line to protect our land, water and wildlife.

To begin your work as a CPO, complete Step 1 and file your report on page 54.

STEP 1: INVESTIGATING CONSERVATION LAWS.

Why are Conservation Laws Necessary?

In order to enforce the law, a CPO must know the several hundred conservation laws concerning the use of our natural resources. These laws are necessary for three reasons:

A) to make sure people use the outdoors in a safe and wise way.
B) to make sure everyone has an equal opportunity to use our natural resources.
C) to make sure our natural resources are protected and not used in a foolish manner.

What Conservation Laws Protect Fish and Wildlife?

The ownership of the fish and wildlife in Illinois is held by the State in trust for all its citizens. Described below are important fish and wildlife protection laws.

Endangered and Threatened Fish and Wildlife

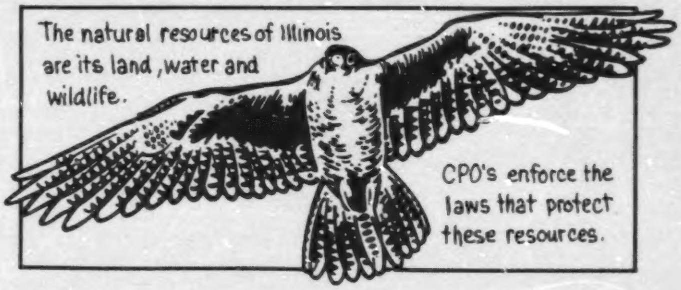
Seventy-two wildlife species are listed as endangered or threatened in Illinois. The endangered animals are in danger of extinction. It is illegal to kill, hurt or possess an endangered animal. Some endangered animals are bald eagle, short-eared owl, prairie chicken, upland sandpiper, marsh hawk, white-tailed jackrabbit, gray bat, bluebreast darter, big eye chub, broad-banded watersnake, spotted turtle and silvery salamander. Some threatened species are bobcat, river otter and loggerhead shrike.

Protected Wildlife That Cannot be Hunted

Nearly 500 species of wildlife cannot be legally hunted, captured or harmed in Illinois. Some protected animals are screech owl, blue jay, cardinal, red-tailed hawk, American robin, eastern meadowlark, great-blue heron, grasshopper sparrow, American toad, bullsnake, flying squirrel, eastern woodrat, little brown bat and river otter.

Game Fish and Wildlife

Hunted species of fish and wildlife are known as game species and may be legally hunted or fished in Illinois. It is illegal, however, to violate fishing and hunting laws when taking these species. Hunting laws are designed to protect game species from overharvesting. Hunting and fishing laws are also safety laws, and if followed protect the hunter or angler from accidents. Please study carefully some of the most important hunting and fishing laws described below.


The natural resources of Illinois are its land, water and wildlife.
CPO's enforce the laws that protect these resources.

Fishing and Hunting Laws

1. Anglers, hunters and trappers must have a current and valid license with them at all times when they are hunting or fishing. Persons under the age of 16 must complete a hunter safety education program before they can get a license.
2. Anglers and hunters may take no more than the *legal limit* of game species. Hunters may only hunt during certain seasons and certain hours of the day. See the season, hours and legal limit chart on page 54.
3. It is illegal to hunt or "spotlight" (shining a light to *hypnotize* and/or locate animals) from a car, boat, snowmobile or plane.
4. It is against the law to carry a gun in any motor vehicle unless it is unloaded and in a case.
5. It is illegal to take any game or protected species and keep it alive. *Warning:* Wild animals cannot be taken as pets. These animals deserve to live free and wild in their natural habitats.
6. It is illegal to molest or destroy any den, nest, or other animal cavity.
7. Hunters and trappers must wear blaze orange clothing when afield during shotgun deer season.

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Season Dates, Hours and Legal Limit Chart

SPECIES	SEASON DATES	HOURS	DAILY LIMIT	POSSESSION LIMIT
WILDLIFE gray squirrel and fox squirrel	Aug. 2-Nov. 15 (South) Sept. 2-Nov. 15 (North)	Sunrise to Sunset	5	10
Deer (taken by shotgun)	Nov. 19, 20, 21 & Dec. 10, 11, 12.	Half hour before sunrise to half hour before sunset.	ONE DEER PER YEAR	
Cock pheasant	Nov. 6-Jan. 2	Sunrise to Sunset	2	4
Quail	Nov. 6-Jan. 2	Sunrise to Sunset	6	12
Cottontail Rabbit	Nov. 6-Jan. 2	Sunrise to Sunset	4	8
Mourning Dove	Sept. 1-Oct. 15	Noon to Sunset	15	30
FISH Black Bass (largemouth, smallmouth, spotted)	OPEN	6 daily, singly or collectively (except in Mississippi River between Illinois and Iowa where daily limit is 10)		
Muskie/Tiger Muskie	OPEN	1 (singly or collectively, minimum length 30 inches)		
Salmon and Trout (outside Lake Michigan)	OPEN	5 daily (singly or collectively)		
Striped and White Bass	OPEN	No limit for fish less than 17 inches except in certain waters. Bag limit is three for fish 17 inches long or longer.		

What Laws Protect Water Resources?

Illinois has more than 1½ million acres of lakes, streams, ponds and rivers. It is illegal to dump sewage or any other pollutant into Illinois' waterways.

What Laws Protect our Forests?

The 3.4 million acres of forest in Illinois provide wildlife habitat, recreational opportunities, lumber and firewood. It is illegal to cut or damage any tree on public property unless permitted as part of a special program. It is also unlawful to cut or damage any tree on private property without the consent of the owner. Forest fires cause terrible damage to many acres of forest in Illinois every year. Because of the danger of forest fire, it is illegal to start a fire in a forest in an intensive fire protection district.

What Laws Protect State Parks?

Illinois is fortunate to have a large number of state parks, memorials, conservation areas, and recreational areas. These areas provide habitat for wildlife as well as recreational activities for millions of persons each year. Listed below are some of the most important regulations park visitors must follow.

1. It is illegal to litter, cut or damage any tree or plant and to light any fire except a campfire in designated campfire pits.
2. It is illegal to kill or hunt or take alive any animal unless allowed by hunting and fishing regulations.

Natural Areas and Nature Preserves

Nature Preserves are protected by law in Illinois. These areas, which include prairies, wetlands and forests, are still in the natural condition they were in before the settlement of Illinois. These areas provide habitat for wildlife and plants and serve as living museums of our natural heritage. The laws that protect Nature Preserves are very strict. It is illegal to kill, injure or disturb any plant or animal in these areas. It is also illegal to hunt any species, trespass with a motor vehicle or damage any property in a Nature Preserve.

YOUR REPORT ON CONSERVATION LAWS

1. Explain the duties of a Conservation Police Officer (CPO)? Do you think the CPO's job is important? Explain your answer.
2. Why are conservation laws necessary?
3. Who owns the fish and wildlife in Illinois? Why is it important to protect endangered species and protected species that cannot be hunted?
4. Why do you think fishing and hunting laws are necessary? What could happen if there were no limits set for the number of fish and wildlife that can be taken by hunters and anglers.
5. Do you think laws that protect our forests are necessary? Explain your answer.
6. What could happen if park visitors did not follow the regulations that govern the use of our parks?
7. Do you think it is important to protect Nature Preserves from misuse? Explain your answer.

STEP 2: WORKING THE FIELD AS A CPO:

Now it is time to practice what you have learned about conservation laws. Over the next two pages, you will work as a CPO and you will meet people who may or may not be breaking the law. It is your job to decide if the people you meet are following or breaking the law. If they are breaking the law, you will have to give them a ticket for each violation and explain to them why they are breaking the law. Please use the information on conservation laws on this page and page 53 as a guide. Now put on your CPO cap and go to work!

6:00 A.M. The sun is still hiding and the night air is crisp and clean. The date is November 15 and you are off to an early start on your day's work as a CPO. As your first move, you get in your patrol car and sign on over the radio with the State Police. "DuQuoin — Frank 5-14 Code 101"

6:30 A.M. You are traveling along a lonely stretch of highway when you see a pick-up truck parked on the side of the road. A person is shining a spotlight out of the truck window. You pull up behind the pick-up and call in the license plate of the truck and your location to the State Police. You then walk up to the driver's side of the truck and say: "Hello, I'm a Conservation Police Officer and I'm interested in what you are doing. Can you tell me?" The driver of the truck tells you that he and his partner have been hunting all night by using a spotlight from the truck. Is this legal? ______
Explain your answer. ______

You ask to check the truck for wildlife and you find a screech owl that has been shot. Is this legal? ______
Explain your answer. ______

You also find a cottontail rabbit that has been shot. Is this legal? ______ Explain your answer. ______

______

You also find two loaded guns in the truck that are not in cases. Is this legal? ______ Explain your answer.

______

Before you go you ask to see the licenses of the two men. They show you two expired licenses. If this legal? ______ Explain your answer. ______

______

Before you leave, you look in the back of the truck and see a shot deer. Is this legal? ______ Explain your answer. ______

9:30 A.M. The sun is out now and you are traveling down a dusty country road. You see a car parked off the road alongside a stretch of woods. You park behind the car, radio in the license plate and your position. Since the car is empty, you walk into the woods to look for the owner. Before long, you locate the owner who is out today to hunt. You introduce yourself and ask to see his license and the animals in his game bag. He shows you a valid current license and then shows you the animals. There are two quail. Is this legal? ______ Explain your answer. ______

There are two fox squirrels. Is this legal? ______ Explain your answer. ______

The hunter is not wearing blaze orange. Is this legal? ______ Explain your answer. ______

11:00 A.M. You drive through the gates of the Illinois State Park and head for the campground area. In one area, you see a person cutting down a small dogwood tree to use as firewood. Is this legal? ______ Explain your answer. ______

As you are walking over to talk to the man he stops, takes a sip of soda and throws the empty soda can on the ground. Is this legal? ______ Explain your answer. ______

11:30 A.M. You stop at the next campsite where some people are sitting around a fire pit. Is this legal? ______ Explain your answer. ______

You introduce yourself to the campers and they say they are camping here and plan to go hunting in a designated hunting area tomorrow. Is this legal? ______ Explain your answer. ______

The campers ask you for some pointers on safe hunting and regulations. You are happy to share some pointers with them and you wish them good luck and happy camping as you leave.

11:45 A.M. You stop at another campground spot and introduce yourself to a family eating a picnic lunch. There is a small cage on the ground with a raccoon in it. The family tells you they caught the raccoon and are planning to take it home as a pet. Is this legal? ______ Explain your answer. ______

12:00 P.M. You are now standing at the banks of the Illinois River. This beautiful river flows through Illinois State Park and is a good place to fish. You walk up to a woman who is fishing the river, and say "Hello, I'm a Conservation Police Officer. May I see your fishing license? She shows you a license that has expired. Is this legal? ______ Explain your answer. ______

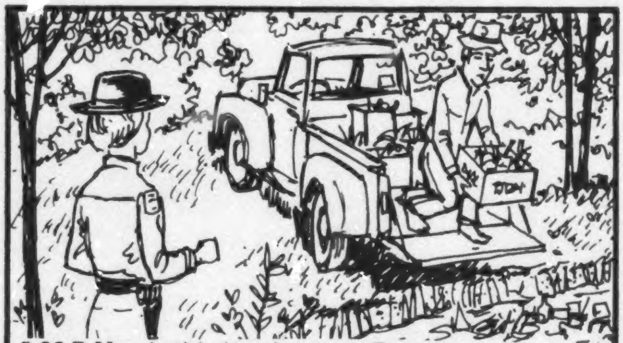
She then shows you the fish she has caught. There are a total of seven bass, four largemouth bass and three smallmouth bass. Is this legal? ______ Explain your answer. ______

There are four striped bass that range from 18 to 21" long. Is this legal? ______ Explain your answer. ______

12:30 P.M. You introduce yourself to a second angler and ask to see his license and catch. The angler shows you a valid and current fishing license and a salmon stamp which is necessary to fish legally for salmon. He has caught three salmon. Is this legal? ______ Explain your answer. ______

12:45 P.M. Now you are in a jon boat patrolling the river. You come upon a fisherman fishing from a boat. You introduce yourself and ask to see his license and catch. He shows you a valid and current fishing license. He has caught one tiger muskie that is 35" long. Is this legal? ______ Explain your answer. ______

2:30 P.M. You are now patrolling on foot the Illinois Prairie Nature Preserve. You see a person standing up ahead. The person is looking at a bird through binoculars. You see that the bird is a short-eared owl. The person asks you if it would be legal to trap the owl and take it home as a pet. What do you tell the person? ______



3:00 P.M. Is this legal. ______ Explain your answer. ______

3:15 P.M. You are back on the road again and you see a hunter out in a field. You radio your location to the State Police, park your car, walk out into the field and introduce yourself to the hunter and ask to see his license. The hunter shows you his license and it is a valid current license. You next ask to see the animals in his game bag. The hunter shows you. There are two cottontail rabbits. Is this legal? ______ Explain your answer. ______

There are two mourning doves. Is this legal? ______ Explain your answer. ______

There is one gray squirrel. Is this legal? ______ Explain your answer. ______

There is one cock pheasant. Is this legal? ______ Explain your answer. ______

4:00 P.M. You receive a call over your radio to settle a dispute between a landowner, Ms. McDade, and a timber buyer, Mr. Owens. You arrive at the McDade property, which is a 40 acre forest and find Ms. McDade and Mr. Owens arguing. You identify yourself and ask each of them to explain the situation. Ms. McDade says Mr. Owens has been cutting trees on her property. Mr. Owens admits he has but he thought the land was owned by another person named Mr. Thompson. Mr. Owens goes on to say that Mr. Thompson owns the forest across the road and that Mr. Thompson gave him permission to cut and buy trees on his land. Is it legal for Mr. Owens to cut trees on Mr. Thompson's land? ______ Explain your answer. ______

Is it legal for Mr. Owens to cut trees on Ms. McDade's land? ______ Explain your answer. ______

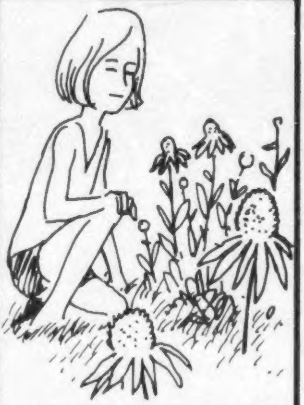
4:45 P.M. The sun is low now and from your car window, you see smoke coming out of a forest alongside the road. You get out to investigate and discover a group of teenagers have started a bonfire in the forest. You ask the teenagers if they know they are in an intensive fire protection district and they say they do. Have the teenagers committed a violation? ______ Explain your answer. ______

6:30 P.M. It's been a long hard day. As you drive toward your home, you think about the two types of people you met during the day. The first group showed you that they had a strong conservation ethic by following the law. But then there were those few people who were breaking the law by abusing plants, animals and even the land. As you pull into the driveway of your home, you wonder, "Do these two types of people have anything in common?" After thinking a moment, you say to yourself, "Yes, everyone in Illinois shares the ownership of the state's natural resources. It's my job as a CPO to see to it that no one person spoils those precious resources for everyone else. It's a big job."

"DuQuoin Frank 5-14 Code 402-Goodnight"

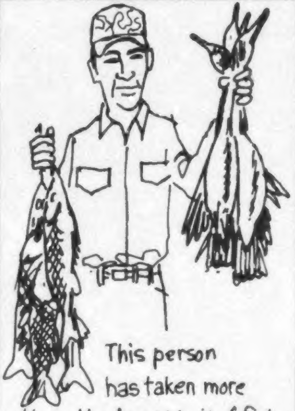
Do You Have a Strong Conservation Ethic?

Conservation Police Officers cannot protect our land, waterways and wildlife by themselves. They work together with all the people in Illinois to protect our natural resources. Fortunately, most Illinoisans have a STRONG CONSERVATION ETHIC which means they believe the land, water and wildlife should be treated with respect and care. Do you think you have a strong conservation ethic? Drawn below are eight Illinoisans. Some of them are demonstrating a strong conservation ethic while others are not. Study each drawing and in the space provided, write YES, if you would do the same in the same situation or write NO, if you would not do the same in the same situation.



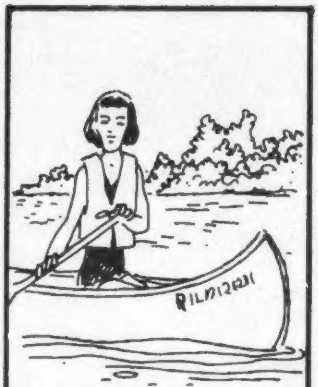
This person never throws litter on the ground or in water.

____



This person has taken more than the legal limit of fish and wildlife. He is also hunting out of season.

____



This person always practices good safety when she is in the outdoors.

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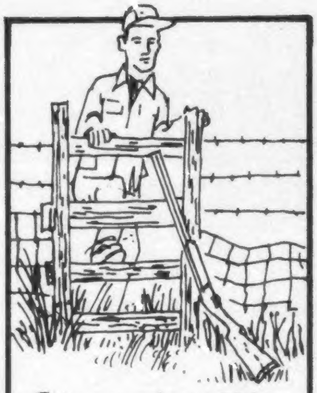

This person does not take the time to use and handle his gun safely when he is afield.

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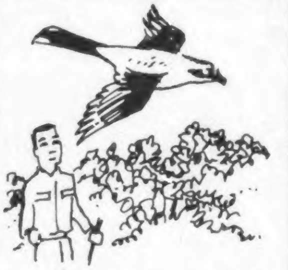

This person enjoys seeing an endangered species or protected species that cannot be hunted. This person also tells others how important these animals are and how we should treat them with respect and care.

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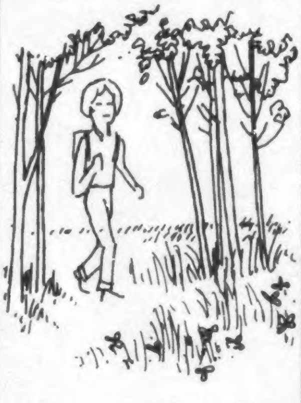

This person enjoys hiking camping and bird watching. This person always takes care to not disturb the dens and nests of animals.

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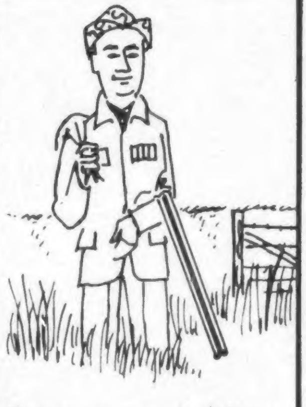
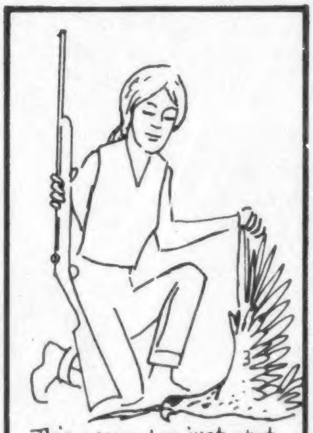


This person never takes more than the legal limit of fish and wildlife. He also never hunts out-of-season.

____



This person has just shot an endangered marsh hawk because she thought that it would hurt her.

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